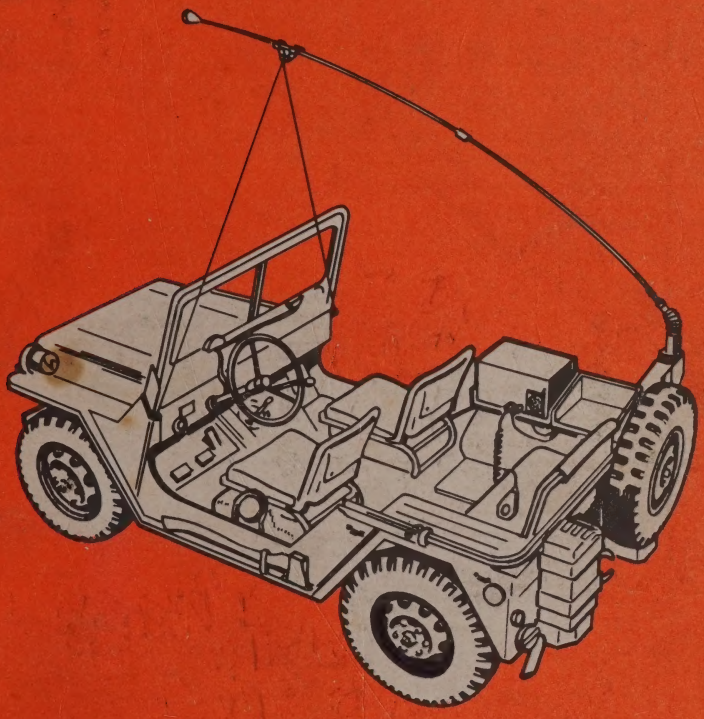
TM11-5820-401-10-1

OPERATOR'S MANUAL



EQUIPMENT DESCRIPTION

OPERATOR'S CONTROLS

PMCS

OPERATION

TROUBLE SHOOTING

RADIO SETS: AN/VRC-12, AN/VRC-43, AN/VRC-44, AN/VRC-45, AN/VRC-46, AN/VRC-47, AN/VRC-48, AN/VRC-49,

(USED WITHOUT INTERCOM SYSTEMS)

HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON, D.C.

AUGUST 1977

HOW TO USE THIS MANUAL

- This manual tells about the typical arrangements of the AN/VRC–12 series of radio used without an intercom system.
- While using this manual, remember that your mission and type of vehicle used will determine the types and number of audio accessories authorized, antennas used, cable installations and routing, and the physical placement of the radio equipment in your vehicle.
- This manual gives you all the necessary information you need to operate these radio sets.

* TM 11-5820-401-10-1

TECHNICAL MANUAL
No. 11-5820-401-10-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 30 August 1977

Operator's Manual

RADIO SETS

AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (NSN 5820-00-223-7415), AN/VRC-44 (NSN 5820-00-223-7417), AN/VRC-45 (NSN 5820-00-223-7418), AN/VRC-46 (NSN 5820-00-223-7433), AN/VRC-47 (NSN 5820-00-223-7434), AN/VRC-48 (NSN 5820-00-223-7435), AND AN/VRC-49 (NSN 5820-00-2233-7437)

(USED WITHOUT AN INTERCOM SYSTEM)

REPORTING OF ERRORS

YOU CAN IMPROVE THIS MANUAL BY RECOMMENDING IMPROVEMENTS USING DA FORM 2028-2 (TEST) LOCATED IN THE BACK OF THE MANUAL. SIMPLY TEAR OUT THE SELF ADDRESSED FORM, FILL OUT AS SHOWN ON THE SAMPLE, FOLD IT WHERE SHOWN, AND DROP IT IN THE MAIL.

IF THERE ARE NO BLANK DA FORMS 2028-2 (TEST) IN THE BACK OF YOUR MANUAL, USE THE STANDARD DA FORM 2028 (RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS) AND FORWARD TO THE COMMANDER, US ARMY ELECTRONICS COMMAND, ATTN: DRSEL-MA-Q, FORT MONOUTH, NEW JERSEY 07703.

IN EITHER CASE A REPLY WILL BE FURNISHED DIRECT TO YOU.

*THIS MANUAL SUPERSEDES SO MUCH OF TM 11-5820 401-12/NAVELEX 0967-432-3010, 7 SEPTEMBER 1972, INCLUDING ALL CHANGES THAT PERTAINS TO THE OPERATOR'S PORTION FOR RADIO SETS AN/VRC-12, AN/VRC-43, AN/VRC-44, AN/VRC-45, AN/VRC-46, AN/VRC-47, AN/VRC-48 AND AN/VRC-49 (USED WITHOUT INTERCOM).

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CHAPTER 1

INTRODUCTION

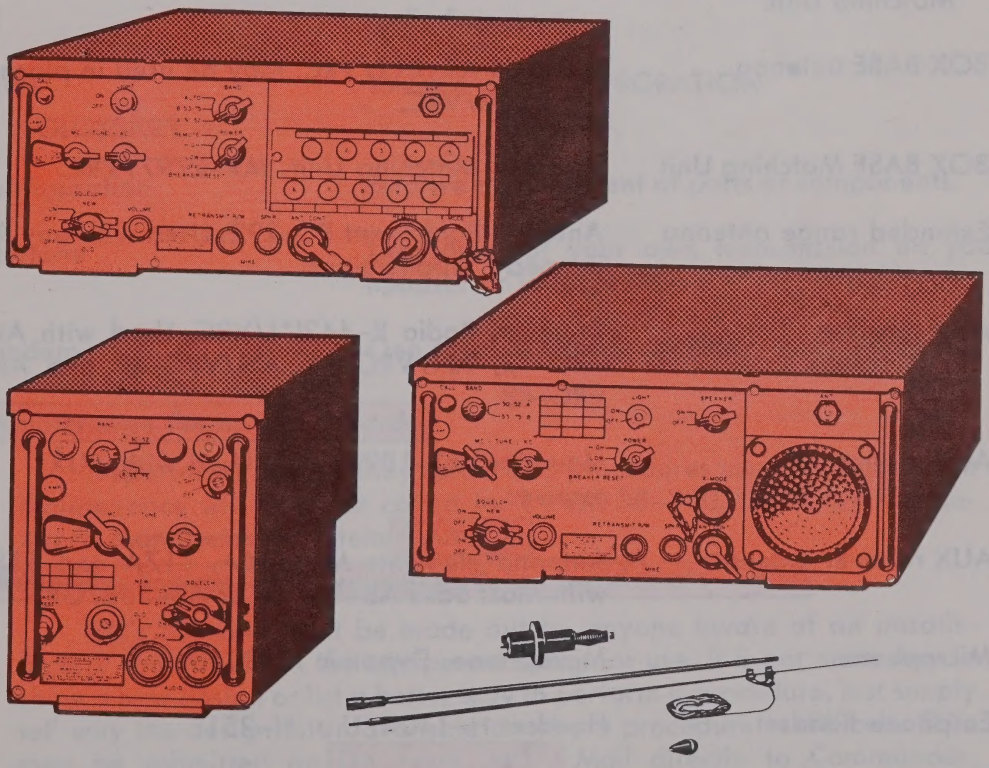
Section I. GENERAL INFORMATION

Scope

a. The purpose of this manual is to tell you how to operate and maintain the AN/VRC–12 series of radio sets that are used without intercom systems.

b. The AN/VRC–12 series make up different types of radio systems used in vehicles, including Jeeps, trucks, tanks and armored personnel carriers.They are also used in light aircraft, heliocopters, marinecraft and communications shelters and vans.

c. Another technical manual, TM 11–5820–401–10–2 covers the series of radio sets with intercom systems and combat vehicle crew helmets. These sets are used in tanks and other crew operated equipment.



REFERENCE INFORMATION

NOMENCLATURE CROSS REFERENCE LIST

Common Name	Official Nomenclature and General Application
AN/VRC–12 Series of radio sets	AN/VRC–12, AN/VRC–43 through 49.
Receiver-Transmitter or R-T	Receiver-Transmitter RT–246(*)/VRC used with AN/VRC–12, AN/VRC–43, AN/VRC–44 and AN/VRC–45.
	Receiver-Transmitter RT–524(*)/VRC used with AN/VRC–46, AN/VRC–47, AN/VRC–48 and AN/VRC–49.
R-T mount	Mounting MT–1029/VRC. Used with any R–T.
COMPACT ANTENNA	Antenna AS–1729/VRC. Can be used with any R–T.
COMPACT ANTENNA Matching Unit	Matching Unit-Base, Antenna MX–6707/VRC.
BOX BASE antenna	Antenna AT–912/VRC. May be used in place of AS–1729/VRC.
BOX BASE Matching Unit	Antenna Matching Unit, MX–2797/VRC.
Extended range antenna	Antenna Equipment RC–292. Used with any R–T in special applications.
AUX receiver	Receiver, Radio R–442(*)/VRC. Used with AN/VRC–12, AN/VRC–44, AN/VRC–47 and AN/VRC–48.
AUX mount	Mounting MT–1898/VRC. Used with AUX receiver.
AUX receiver antenna	Antenna elements MS–116A, 117A and 118A with Mast Base AB–15/GR or AB–558/GR.
Microphone	Microphone, Dynamic M–80/U.
Earphone headset	Headset H–140A/U or H–251.
Combination headset	Headset Microphone H–161/U.
Handset	Handset H–189/GR or H–250.

REFERENCE INFORMATION (continued)

Loudspeaker — Loudspeaker LS–454/U.

REMOTE CONTROL BOX — Control, Frequency selector C–2742/VRC. Used for remote control of RT–246(*)/VRC.

RELAY BOX — Control, Radio Set C–2299/VRC. Used for automatic retransmission with AN/VRC–45 and AN/VRC–49. It is also provided in some AN/VRC–12 installations as a convenient means of connecting audio accessories to the R–T.

LIST OF ABBREVIATIONS

dc	direct current
fm	frequency modulation
rf	radio frequency
RWI	RADIO-WIRE-INTERGRATION

GLOSSARY

configuration	Relative arrangement of parts or components.
sidetone	The sound of your own transmission on your headset or loudspeaker.
tandem	One after or behind another.

Maintenance Forms and Records

Department of the Army forms and procedures used for equipment maintenance will be those called for by TM 38–750, the Army Maintenance Management System (TAMMS).

Reporting Equipment Improvement Recommendations (EIR's)

EIR's can and must be made out by anyone aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show a new design or list a better way to perform a procedure, just simply tell why the design in unfavorable or why a procedure is difficult. EIR's may be submitted on DA Form 2407. Mail directly to Commander, US Army Electronics Command, ATTN: DRSEL–MA–Q, Fort Monmouth, New Jersey 07703. A reply will be furnished to you.

SECTION II

EQUIPMENT DESCRIPTION

PURPOSE OF THE AN/VRC-12 SERIES OF RADIO SETS WITHOUT INTERCOM

Provide short range, two way radio voice communications.

Frequency modulation (fm) type of radio sets.

Transmit and receive in the frequency range of 30 megahertz (mHz) to 75.95 mHz.

Range and type of operation may require different antennas.

Components of this series of radio sets can be connected to make-up a radio relay set.

Several radio sets in the AN/VRC-12 series can be cabled to provide remote control operation.

When authorized, secure communications or digital data transmission can be provided.

PERFORMANCE DATA

- TRANSMISSION DISTANCE WITH WHIP ANTENNA.
  LOW POWER: Approximately 5 miles (8 kilometers (km)).
  HIGH POWER: Approximately 25 miles (41 km).

- TRANSMITTER POWER OUTPUT.
  LOW POWER: Approximately ½ to 10 watts.
  HIGH POWER: 35 watts minimum.

- OPERATING POWER.
  From the 24 volt vehicle battery system.
  22 to 30 volts dc is the common range of voltages in 24 volt vehicle battery systems.

- FREQUENCY RANGE FOR ALL R–T's AND ALL AUX RECEIVERS.
  30 megahertz (mHz) to 75.95 mHz.

- TYPE OF MODULATION.
  All R–T's and AUX receivers use frequency modulation (fm).

- TYPE OF OPERATION.
  Push to talk and release to receive.

- MODES OF OPERATION.
  Voice (radiotelephone).
  Retransmission (radio relay).
  X-mode (secure voice or digital data).

- TUNING THE AUX RECEIVERS.
  All AUX receivers are manually tuned using two knobs.

- TUNING THE RT–524(*)/VRC.
  This R–T is manually tuned using two knobs.

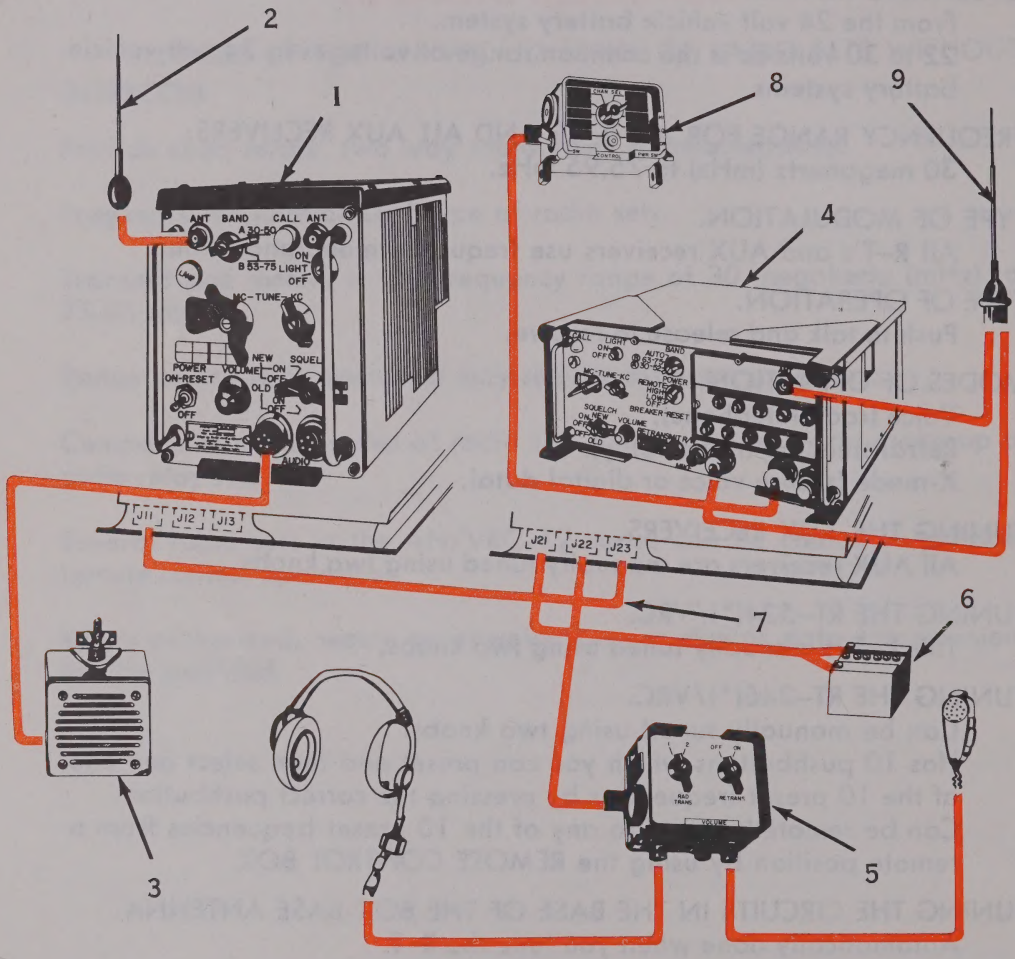
- TUNING THE RT–246(*)/VRC.
  Can be manually tuned using two knobs.
  Has 10 pushbuttons which you can preset and then select any one of the 10 preset frequencies by pressing the correct pushbutton.
  Can be remotetly tuned to any of the 10 preset frequencies from a remote position by using the REMOTE CONTROL BOX.

- TUNING THE CIRCUITS IN THE BASE OF THE BOX BASE ANTENNA.
  Automatically done when you tune the R–T.

- TUNING THE CIRCUITS IN THE BASE OF THE COMPACT ANTENNA.
  Automatically done when you tune the R–T if you have a cable connected from the ANT CONT receptacle on the R–T to the antenna base.
  If no cable is used, you can manually tune the antenna by using the 10 position switch located on the underside of the compact antenna base.

NOTE: DETAILED TECHNICAL DATA AND SPECIFICATIONS CAN BE FOUND IN APPENDIX E IN THE BACK OF THIS BOOK.

THIS IS A TYPICAL



RADIO SET AN/VRC-12

1 AUX RECEIVER WITH ITS MOUNT.
Underside of mount contains receptacles J11, J12 and J13.

2 AUX RECEIVER ANTENNA.

3 AUX RECEIVER LOUDSPEAKER.
Loudspeaker has short cable permanently attached to it.
A special extension cable is availble to extend the loudspeaker.

4 RECEIVER-TRANSMITTER WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

5 RELAY BOX.
Relay box being used as a convenient connector for the audio accessories.

6 24 VOLT VEHICLE BATTERY.
Supplies power for the entire radio set.

7 POWER TRANSFER CABLE.
Connect the AUX receiver to the R–T for power.

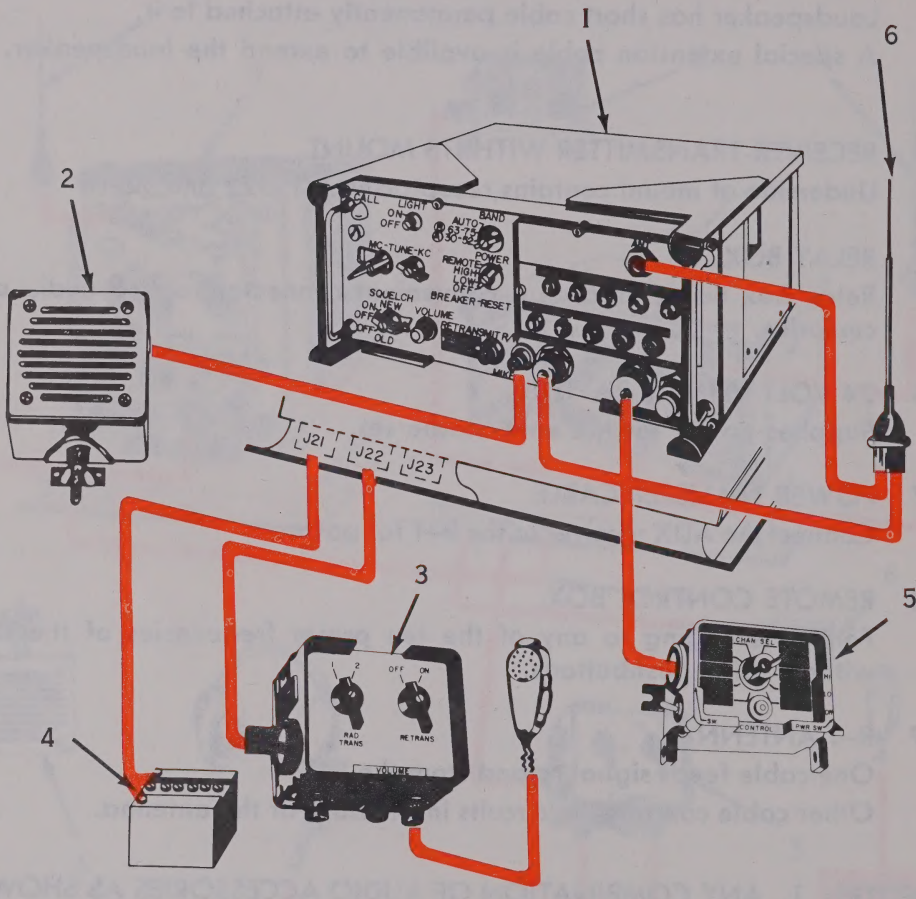
8 REMOTE CONTROL BOX.
Permits changing to any of the ten preset frequencies of the R–T without using pushbuttons.

9 R–T ANTENNA.
One cable feeds signal to and from the R–T.
Other cable controls the circuits in the base of the antenna.

NOTES: 1. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED WITH THE AN/VRC–12.

2. R–T OPERATES ON ONE FREQUENCY AND AUX RECEIVER OPERATES ON ANOTHER FREQUENCY.

THIS IS A TYPICAL



RADIO SET AN/VRC-43

1 RECEIVER-TRANSMITTER WITH ITS MOUNT.
Underside of mount contains receptables J21, J22 and J23.

2 R–T LOUDSPEAKER.
Loudspeaker has a short cable permanently attached to it.
A special extension cable is available to extend the loudspeaker.

3 RELAY BOX.
Relay box being used as a convenient connector for the audio accessories.

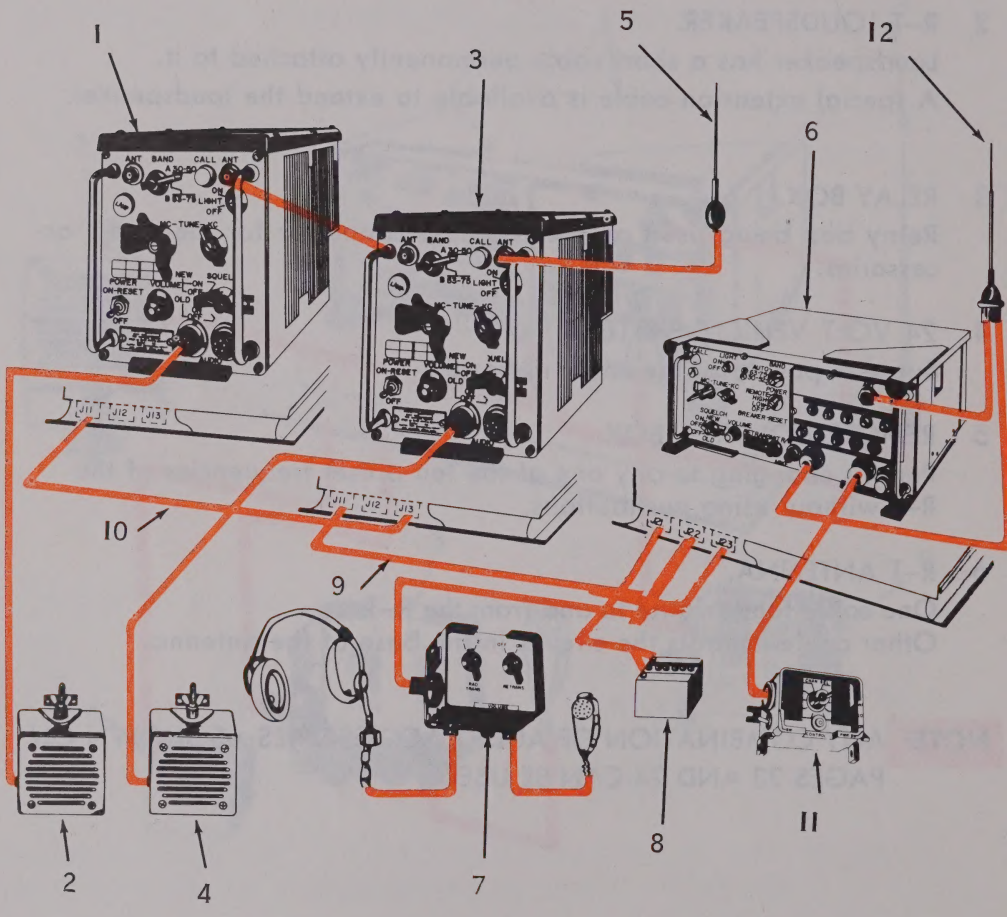
4 24 VOLT VEHICLE BATTERY.
Supplies power for the entire radio set.

5 REMOTE CONTROL BOX.
Permits changing to any one of the ten preset frequencies of the R–T without using pushbuttons.

6 R–T ANTENNA.
One cable feeds signal to and from the R–T.
Other cable controls the circuits in the base of the antenna.

NOTE: ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

THIS IS A TYPICAL



RADIO SET AN/VRC-44

1 AUX RECEIVER NO. 1 WITH ITS MOUNT.
Underside of mount contains receptables J11, J12 and J13.

2 LOUDSPEAKER FOR AUX RECEIVER NO. 1.
Loudspeaker has a short cable permanently attached to it.
A special extension cable is available to extend the loudspeaker,

3 AUX RECEIVER NO. 2 WITH ITS MOUNT.

4 LOUDSPEAKER FOR AUX RECEIVER NO. 2.

5 ANTENNA FOR BOTH AUX RECEIVERS.
One cable connects the antenna to AUX receiver No. 1.
Another cable connects the antenna from AUX receiver No. 1 to AUX receiver No. 2.

6 RECEIVER-TRANSMITTER WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

7 RELAY BOX.
Used as a convenient means of connecting audio accessories.

8 24 VOLT VEHICLE BATTERY.
Supplies power for the entire system through cabling connections on the R–T.

9 POWER TRANSFER CABLE.
Power connection to AUX receiver No. 2.

10 POWER TRANSFER CABLE.
Power connection to AUX receiver No. 1.

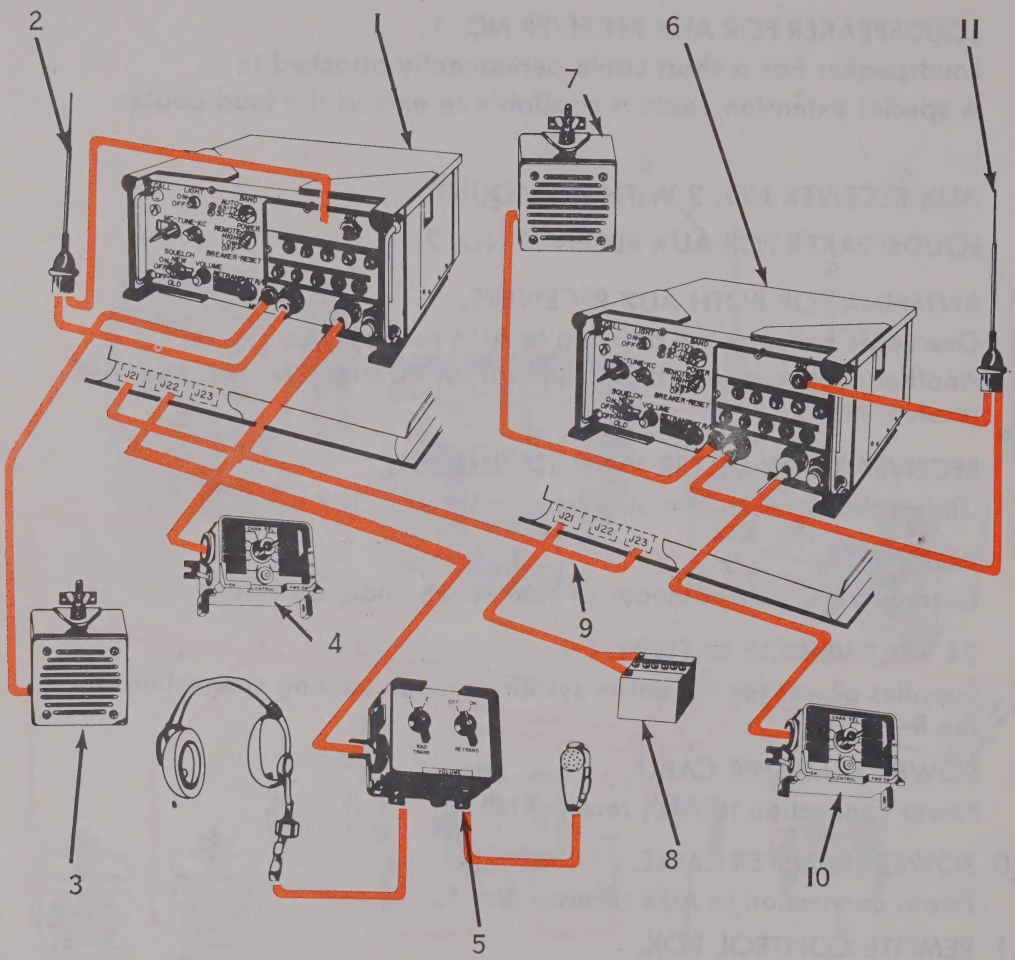
11 REMOTE CONTROL BOX.
Permits changing to one of the ten preset frequencies of th R–T without having to use pushbuttons.

12 R–T ANTENNA.
One cable feeds signal to and from the R–T.
Other cable controls the circuits in the antenna base.

NOTES: 1. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

2. R–T OPERATES ON ONE FREQUENCY AND EACH AUX RECEVER OPERATES ON A DIFFERENT FREQUENCY.

THIS IS A TYPICAL



RADIO SET AN/VRC-45

1 RECEIVER-TRANSMITTER NUMBER 1 WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22, and J23.

2 R–T NUMBER 1 ANTENNA.
One cable feeds signal to and from R–T.
Other cable controls the circuits in the base of the antenna.

3 R–T NUMBER 1 LOUDSPEAKER.
Loudspeaker has a short cable permanently attached to it.
A special extension cable is available to extend the loudspeaker.

4 RELAY BOX.
Relay box being used in its normal way for audio component connection and relay operation.

5 REMOTE CONTROL BOX.
Permits changing to one of the ten preset frequencies of R–T Number 1 without having to use pushbuttons.

6 RECEIVER-TRANSMITTER NUMBER 2 WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

7 R–T NUMBER 2 LOUDSPEAKER.

8 24 VOLT VEHICLE BATTERY.
Supplies power to both R–T's.

9 POWER TRANSFER CABLE.
Connects R–T No. 1 to R–T No. 2 for power.

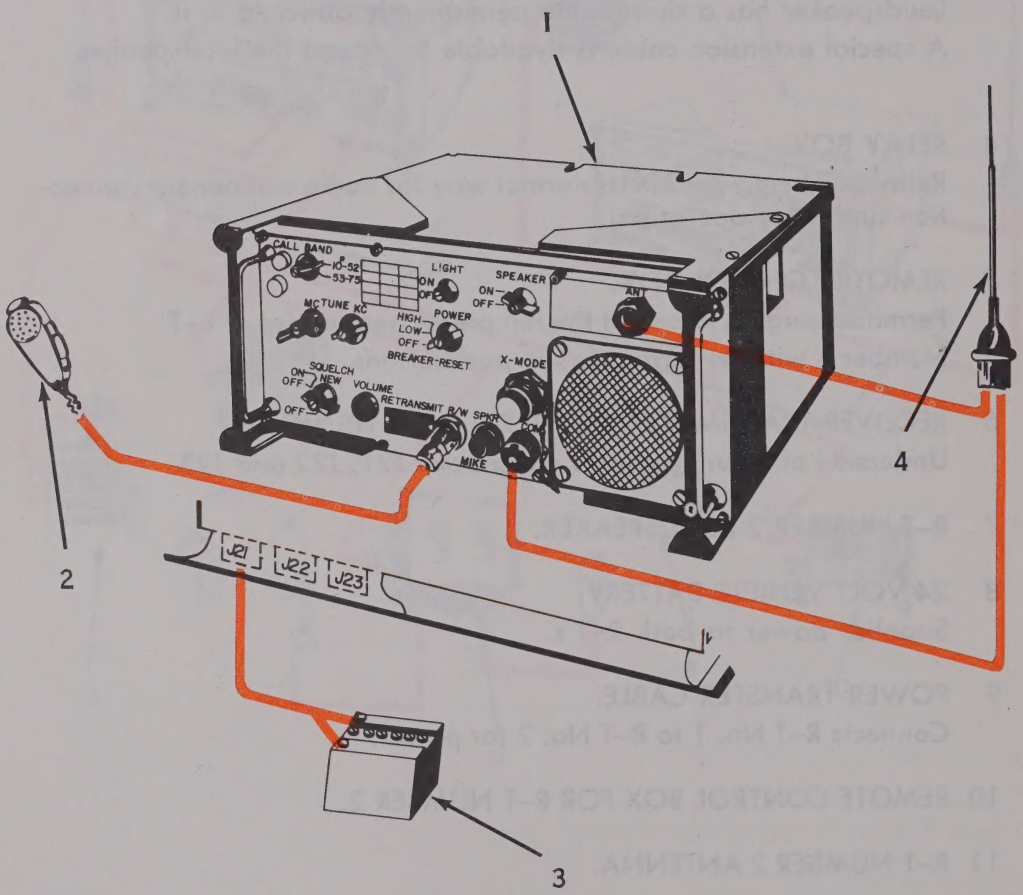
10 REMOTE CONTROL BOX FOR R–T NUMBER 2.

11 R–T NUMBER 2 ANTENNA.

NOTES: 1. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

2. EACH R–T OPERATES ON A DIFFERENT FREQUENCY, PROVIDES RETRANSMISSION FACILITY.

THIS IS A TYPICAL



RADIO SET AN/VRC-46

1 RECEIVER-TRANSMITTER WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

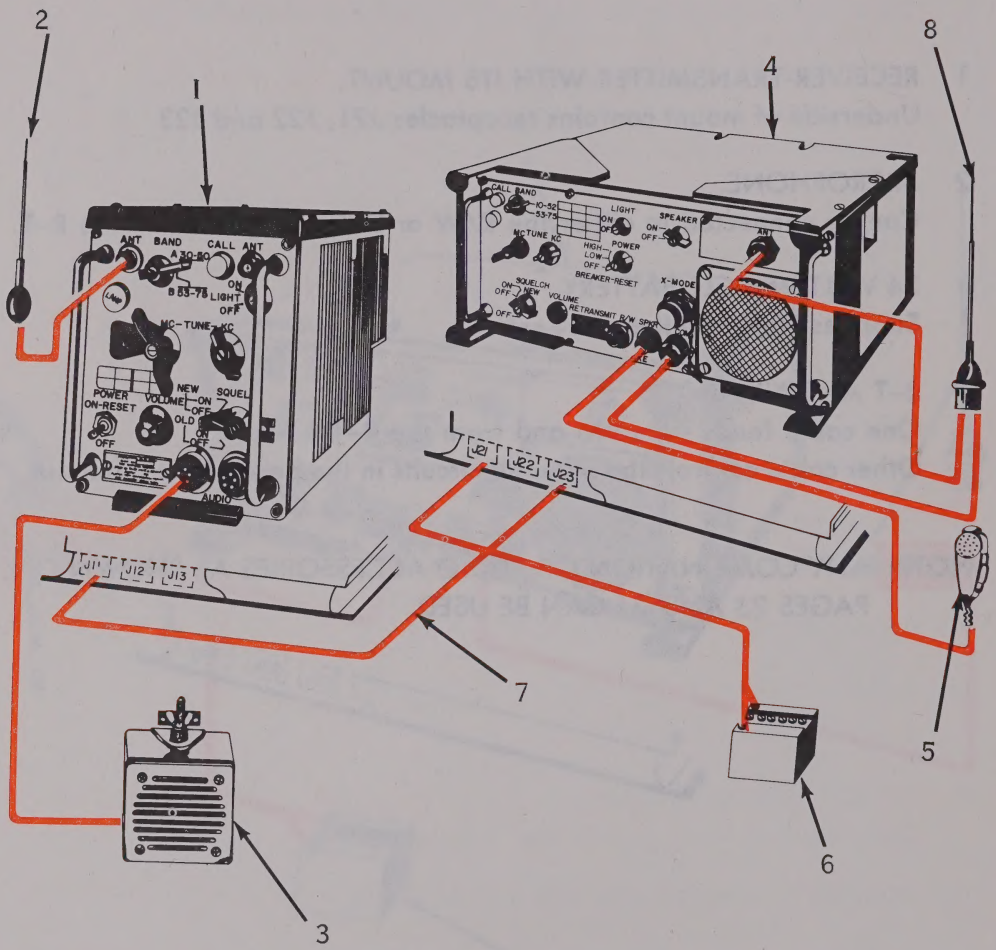
2 MICROPHONE.
Can be connected to either the R/W or SPKR receptacle on the R–T.

3 24 VOLT VEHICLE BATTERY.
Supplies power for the entire set.

4 R–T ANTENNA.
One cable feeds signal to and from the R–T.
Other cable controls the antenna circuits in the base of the antenna.

NOTE: ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

THIS IS A TYPICAL



RADIO SET AN/VRC-47

1 AUX RECEIVER WITH ITS MOUNT.
Underside of mount contains receptacles J11, J12 and J13.

2 AUX RECEIVER ANTENNA.

3 AUX RECEIVER LOUDSPEAKER.
Loudspeaker has a short cable permanently attached to it.
A special extension cable is available to extend the loudspeaker.

4 RECEIVER-TRANSMITTER WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

5 MICROPHONE
Can be connected to either the R/W or SPKR receptacle.

6 24 VOLT VEHICLE BATTERY.
Supplies power for the entire radio set.

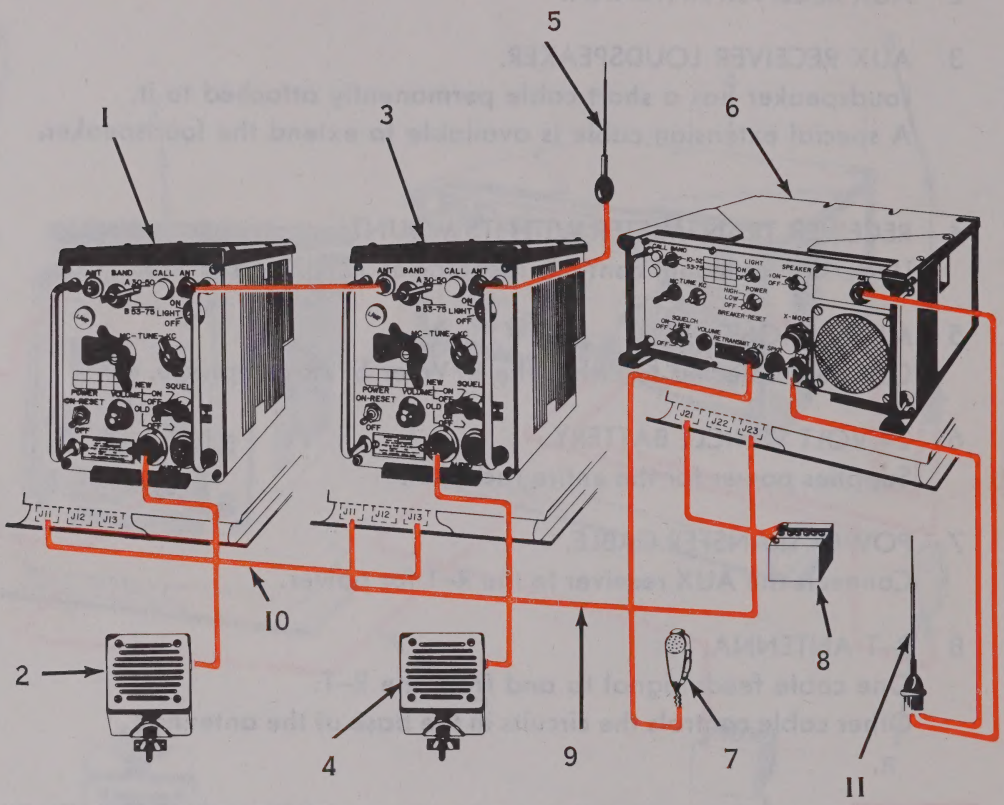
7 POWER TRANSFER CABLE.
Connects the AUX receiver to the R–T for power.

8 R–T ANTENNA.
One cable feeds signal to and from the R–T.
Other cable controls the circuits in the base of the antenna.

NOTES: 1. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

2. R–T OPERATES ON ONE FREQUENCY AND AUX RECEIVER OPERATES ON ANOTHER FREQUENCY.

THIS IS A TYPICAL



RADIO SET AN/VRC-48

1 AUX RECEIVER NO. 1 WITH ITS MOUNT.
Underside of mount contains receptacles J11, J12 and J13.

2 LOUDSPEAKER FOR AUX RECEIVER NO. 1.
Loudspeaker has a short cable permanently attached to it.
A special extension cable is available to extend the loudspeaker

3 AUX RECEIVER NO. 2 WITH ITS MOUNT.

4 LOUDSPEAKER FOR AUX RECEIVER NO. 2.

5 ANTENNA FOR BOTH AUX RECEIVERS.
One cable connects the antenna to AUX receiver No. 1.
Another cable connects the antenna from AUX receiver No. 1 to AUX receiver No. 2.

6 RECEIVER-TRANSMITTER WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

7 MICROPHONE.

8 24 VOLT VEHICLE BATTERY.
Supplies power for the entire system through cabling connections on the R–T.

9 POWER TRANSFER CABLE.
Power connection to AUX receiver No. 2.

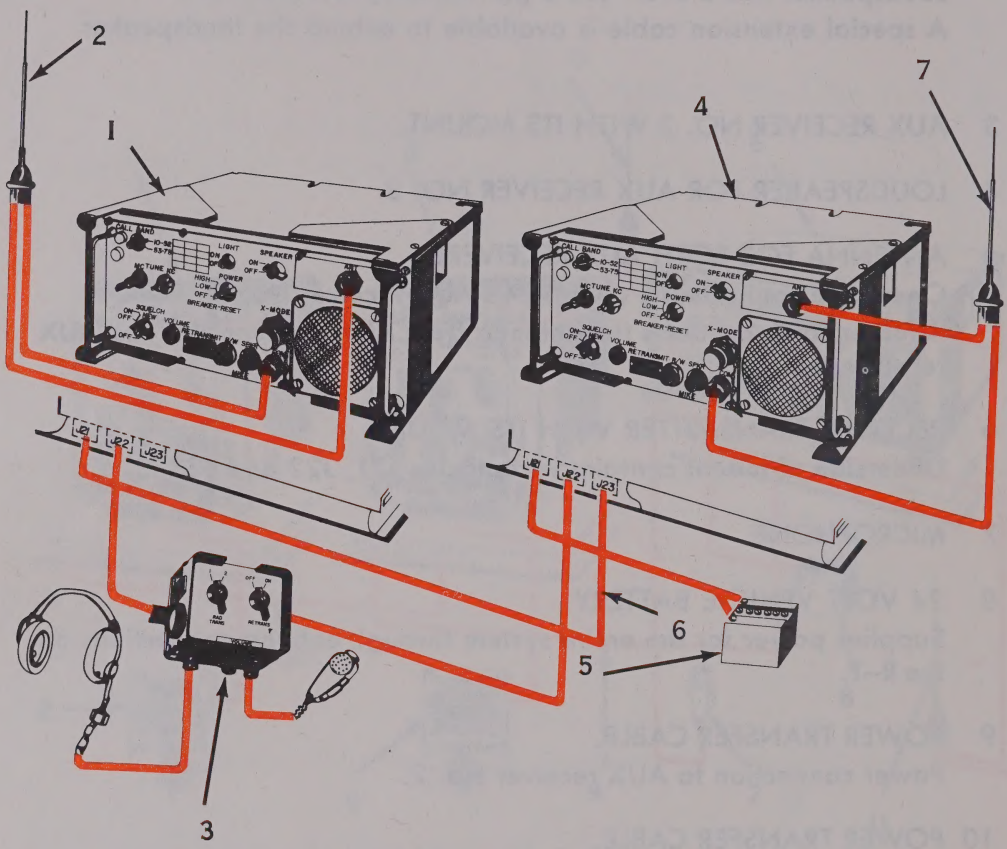
10 POWER TRANSFER CABLE.
Power connection to AUX receiver No. 1.

11 R–T ANTENNA.
One cable feeds signal to and from the R–T.
Other cable controls the circuits in the antenna base.

NOTES: 1. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

2. R–T OPERATES ON ONE FREQUENCY AND EACH AUX RECEIVER OPERATES ON A DIFFERENT FREQUENCY.

THIS IS A TYPICAL



RADIO SET AN/VRC-49

1 RECEIVER-TRANSMITTER NUMBER 1 WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

2 R–T NUMBER 1 ANTENNA.
One cables feeds signal to and from R–T.
Other cable controls the circuits in the base of the antenna.

3 RELAY BOX.
Being used in its normal way for audio component connection and relay operation.

4 RECEIVER-TRANSMITTER NUMBER 2 WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.

5 24 VOLT VEHICLE BATTERY.
Supplies power for the entire radio set.

6 POWER TRANSFER CABLE.
Connects R–T No. 1 to R–T No.2 for power.

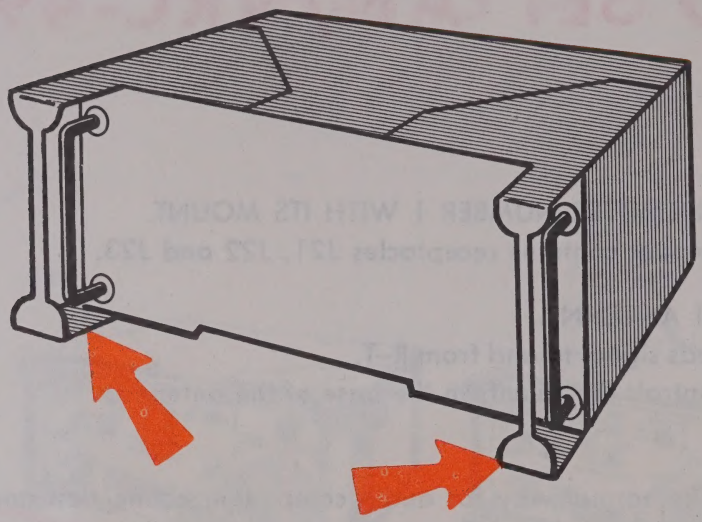
7 R–T NUMBER 2 ANTENNA.

NOTES: 1. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 23 AND 24 CAN BE USED.

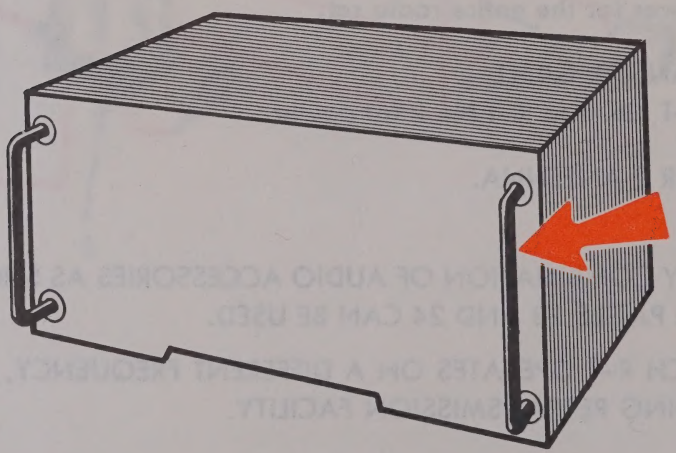
2. EACH R–T OPERATES ON A DIFFERENT FREQUENCY, PROVIDING RETRANSMISSION FACILITY.

DIFFERENCES BETWEEN MODELS

HANDLE ASSEMBLIES



All plain model R–T's have a pair of handle assemblies installed over the front guards.



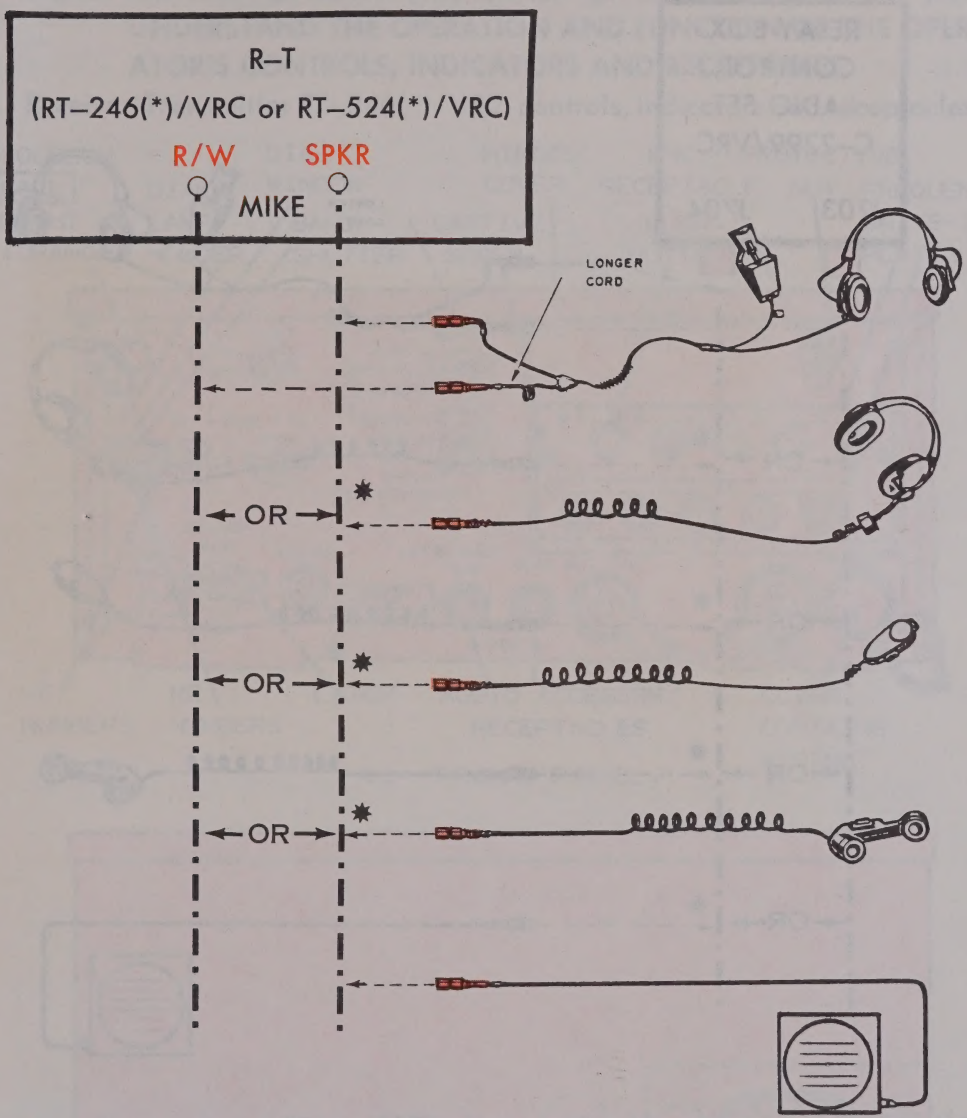
The A model R–T's do not have handle assemblies because their front panel guards are more ruggedly attached to the front panel.

NOTE: The handle assemblies are also provided on some A model R–T's from which one or both front panel guards were removed.

DIFFERENCES BETWEEN MODELS (continued)

AUDIO ACCESSORIES

The number and type of audio accessories you will use is determined by your mission. The R–T's are designed to provide a variety of different ways for you to connect the available audio accessories.



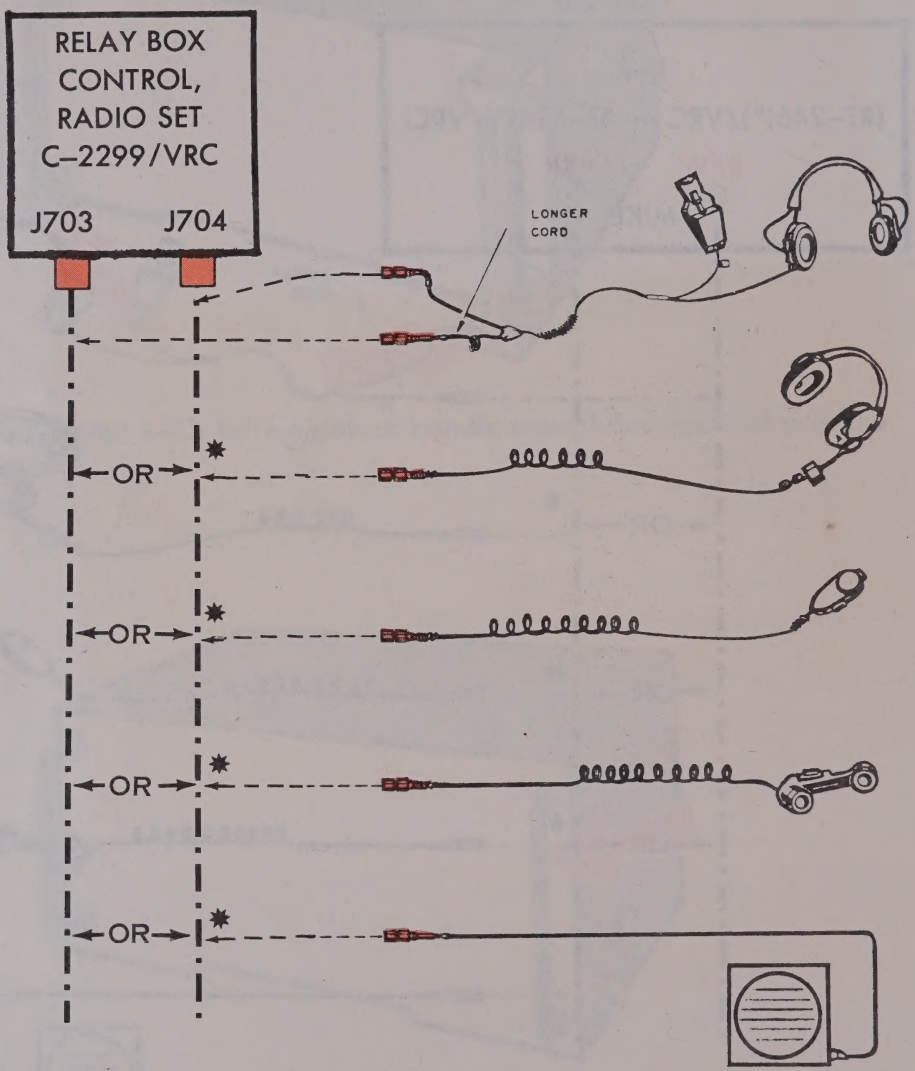
*May be connected to either the R/W or SPKR receptacle on the R–T

TYPICAL CONNECTION COMBINATIONS OF AUDIO ACCESSORIES TO R–T

DIFFERENCES BETWEEN MODELS (continued)

AUDIO ACCESSORIES USED WITH THE RELAY BOX

In a number of radio sets, you will find the Control, Radio Set C-2299/VRC being used as an audio convenience box. This provides additional ways for connecting the audio accessories.



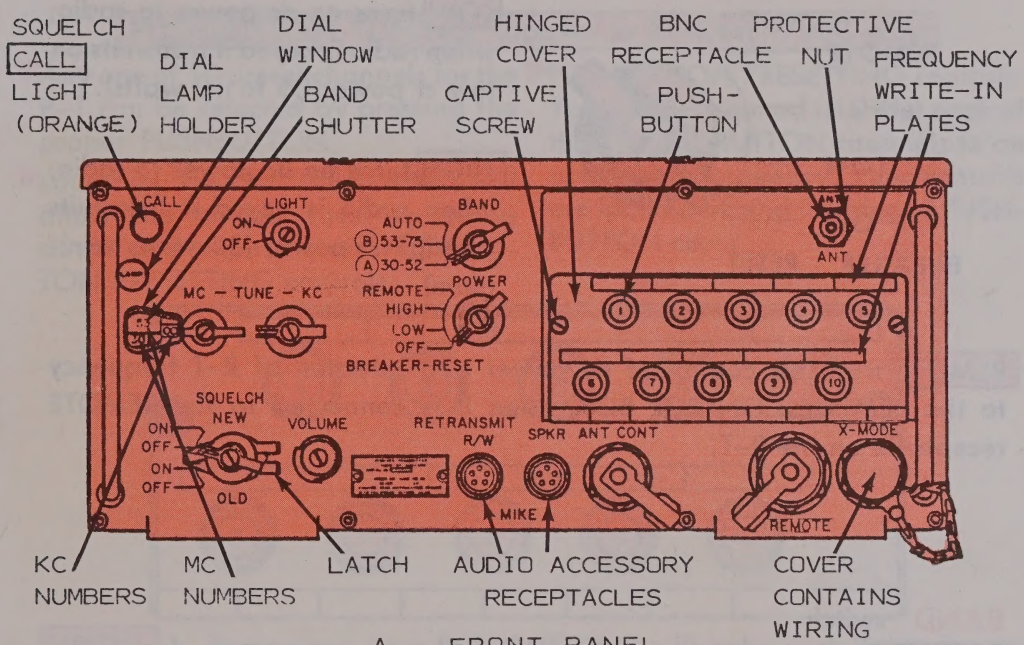
*May be connected to either receptacle J703 or J704 on the audio convenience box.

TYPICAL CONNECTION COMBINATIONS OF AUDIO ACCESSORIES TO THE RELAY BOX

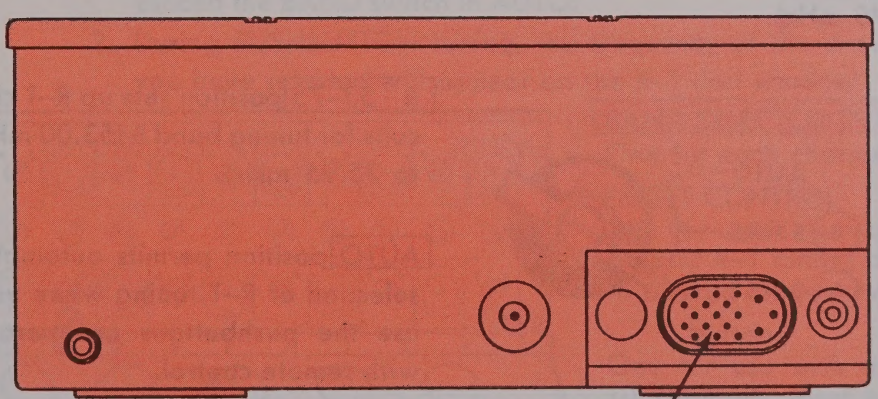
CHAPTER 2
OPERATING INSTRUCTIONS
SECTION I
DESCRIPTION AND USE OF OPERATOR'S CONTROLS, INDICATORS AND RECEPTACLES

NOTE: DO NOT OPERATE THIS SERIES OF RADIO SETS UNTIL YOU UNDERSTAND THE OPERATION AND FUNCTION OF THE OPERATOR'S CONTROLS, INDICATORS AND RECEPTACLES.

Receiver-Transmitter RT-246(*)/VRC, controls, indicators and receptacles.



A. FRONT PANEL.

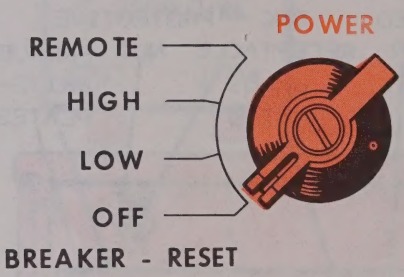


B. REAR VIEW.

OPERATOR'S CONTROLS (continued)

POWER switch

OFF BREAKER-RESET turns off dc power to radio; resets circuit breakers when they are tripped.



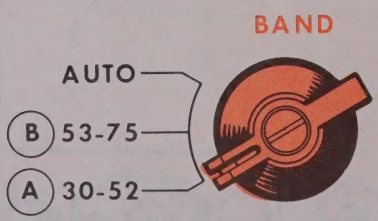
LOW turns on dc power to radio; when radio is keyed it transmits on low rf power (.5 to 10 watts).

HIGH turns on dc power to radio; when radio is keyed it transmits on high rf power (35 watts minimum).

REMOTE transfers control of dc power and selection of R–T frequency to the REMOTE CONTROL BOX when it is connected to the REMOTE receptacle on the R–T.

BAND switch

A 30–52 position sets up R–T circuits for tuning band A (30.00 mHz to 52.95 mHz).



B 53–75 position sets up R–T circuits for tuning band B (53.00 mHz to 75.95 mHz).

AUTO position permits automatic selection of R–T tuning when you use the pushbuttons or operate with remote control.

OPERATOR'S CONTROLS (continued)

MC-TUNE-KC controls and dial indications for MANUAL tuning

MC - TUNE - KC

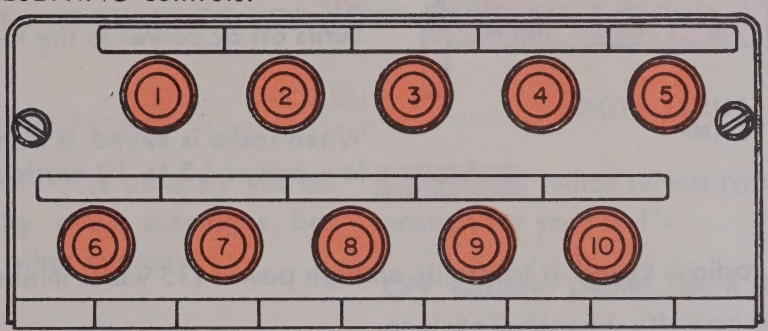
NOTE: A shutter covers the MC numbers in the BAND not being used.

MC control provides manual tuning of R–T in 1 mHz steps (30, 31, 53, 54 etc.) as shown on the outer section of the dial.

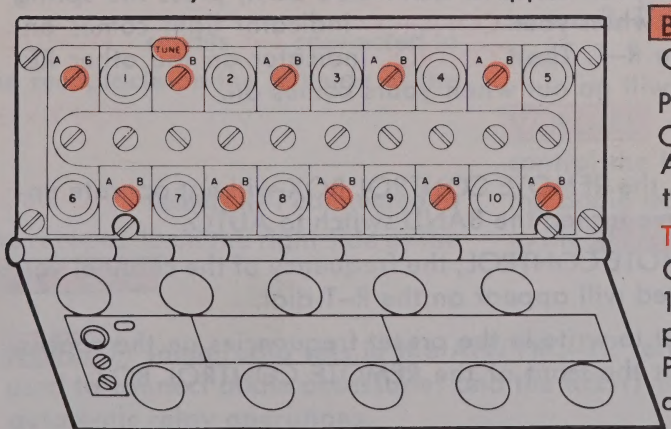
KC control provides manual tuning of R–T in 0.05 mHz steps (00, 05, 10, 15 etc.) as shown on the inner section of the dial.

PUSHBUTTON TUNING (applies to RT–246(*)/VRC only)

- Any one of 10 preset channels for the R–T can be selected by pressing the proper PUSHBUTTON.
- Loosening the CAPTIVE SCREWS will allow the hinged cover to swing down and expose your PUSHBUTTON PRESETTING controls.
- PUSHBUTTON PRESETTING controls. You will be required to preset each of the 10 PUSHBUTTON channels to an authorized frequency. Your controls are located behind the hinged PUSHBUTTON cover.



NOTES:
1. Remember, your PUSHBUTTONS will only work if you have placed the BAND switch in AUTO.
2. During PUSHBUTTON tuning, the frequency of the channel you have selected will appear on the R–T dial window.



BAND SELECTOR SWITCH
One for each channel.

PRESET CONTROL
One for each channel. Adjusts R–T tuning circuits to desired frequency.

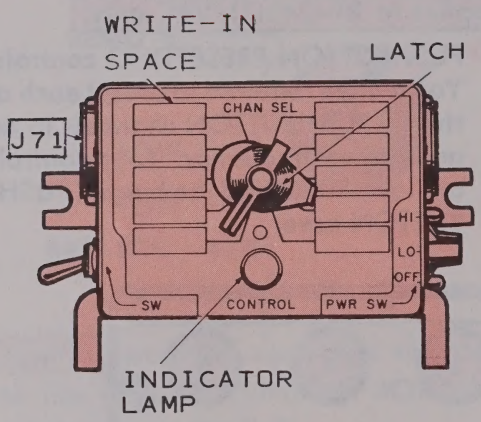
TUNE button.
One for use with all 10 channels. Must be pushed in to allow PRESET CONTROL adjustments to be made.

OPERATOR'S CONTROLS (continued)

REMOTE CONTROL (applies to RT-246(*)/VRC only).

When your RT has been set up for PUSHBUTTON control, it is possible to have REMOTE CONTROL of the 10 preset channels.

The REMOTE CONTROL BOX makes this possible when it is connected to the REMOTE receptacle on the RT.



CHAN SEL switch.
This 10 position switch allows you to choose any one of the 10 preset frequencies.

PWR SW controls dc power to the R-T and selects HI or LO transmitter output.

OFF
Turns off dc power to the R-T.

LO
When radio is keyed, it transmits on low power (.5 to 10 watts).

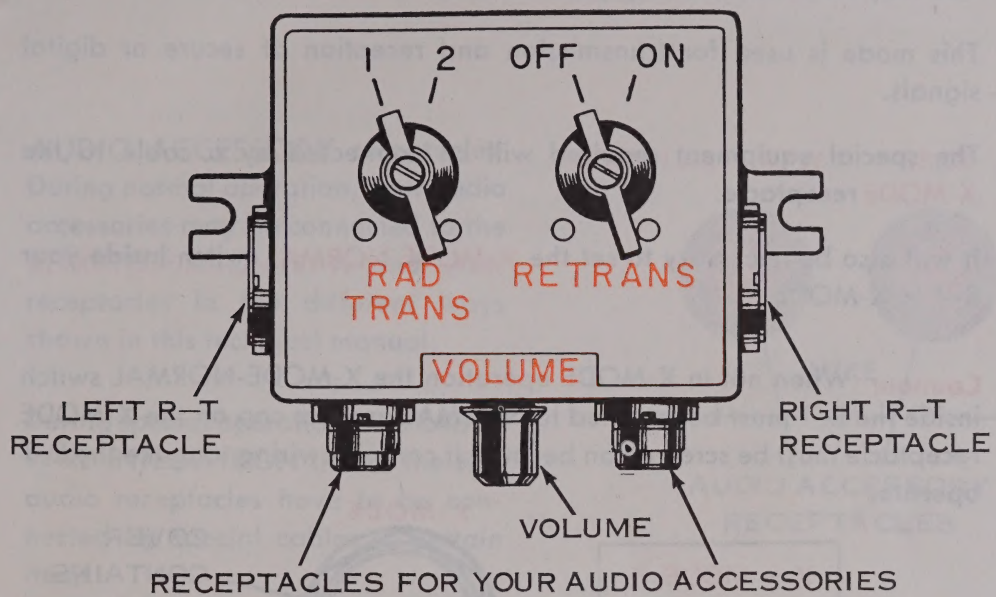
HI
When radio is keyed, it transmits on high power (35 watts minimum).

SW switch and CONTROL indicator.
In some systems, two REMOTE CONTROL BOXES are connected in tandem, providing two remote control positions.

To control the R-T from your REMOTE CONTROL BOX, press the spring loaded SW switch and when your CONTROL indicator light comes on, you have control of the R-T. The CONTROL indicator on the other REMOTE CONTROL BOX will go out when yours comes on.

NOTES:
1. Remember, the REMOTE CONTROL BOX will not operate unless you have turned the BAND switch to AUTO.
2. During REMOTE CONTROL, the frequency of the channel you have selected will appear on the R-T dial.
3. Don't forget to write in the preset frequencies on the spaces provided on the front of the REMOTE CONTROL BOX.

OPERATOR'S CONTROLS (continued)



RELAY OPERATIONS

The RELAY BOX is used by you to automatically relay messages between two other stations.

RAD TRANS switch selects which R–T in your vehicle will be controlled by the audio accessories you have connected to the RELAY BOX.

POSITION 1 selects R–T connected to the receptacle on the left side of the RELAY BOX.

POSITION 2 selects R–T connected to the receptacle on the right side of the RELAY BOX.

RETRANS switch selects type of operation for your R–T's.

OFF position permits both R–T's to operate independently and radio relay operation IS NOT possible.

ON position permits automatic passage of control and audio signals between R–T's for radio relay operation.

VOLUME control allows you to control the loudness of the signal at the audio accessories you connected to the RELAY BOX.

NOTE: In some radio sets in the AN/VRC–12 series, this RELAY BOX is used to connect audio accessories and the RELAY BOX does NOT provide automatic relay operations.

OPERATOR'S CONTROLS (continued)

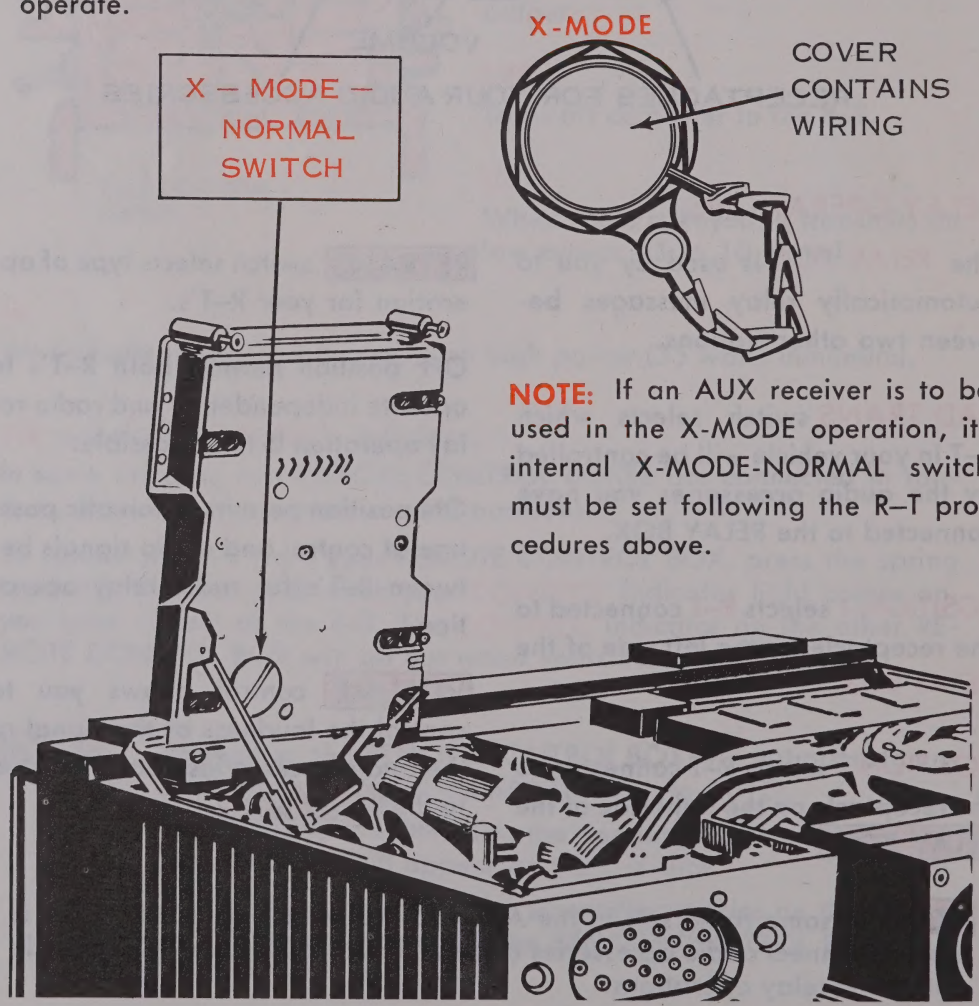
X-MODE recpectacle.
You may be asked to set-up your radio set for X-MODE operation.

This mode is used for transmission and reception of secure or digital signals.

The special equipment required will be connected by a cable to the X-MODE receptacle.

It will also be necessary to set the X-MODE-NORMAL switch **inside** your R–T to X-MODE.

Caution: When not in X-MODE operation the X-MODE-NORMAL switch inside the R–T must be returned to NORMAL and the cap on the X-MODE receptacle must be screwed on because it contains wiring to make the R–T operate.

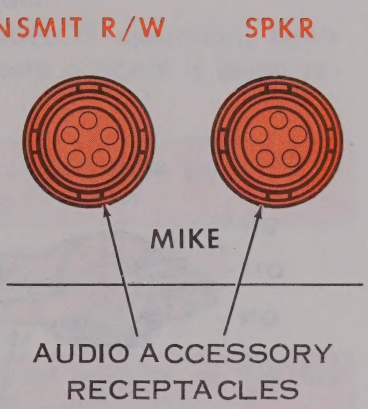


NOTE: If an AUX receiver is to be used in the X-MODE operation, its internal X-MODE-NORMAL switch must be set following the R–T procedures above.

OPERATOR'S CONTROLS (continued)

AUDIO ACCESSORY receptacles
During normal operation, your audio accessories may be connected to the RETRANSMISSION R/W and SPKR receptacles in the different ways shown in this technical manual.

During special operations like RADIO WIRE INTEGRATION (RWI), the two audio receptacles have to be connected by special cables to certain items.

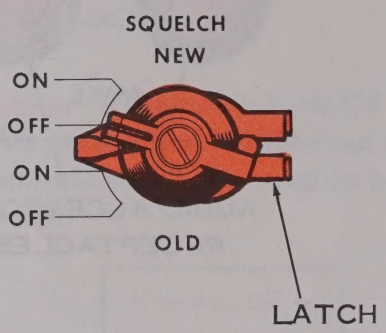


VOLUME control
You can adjust the volume level to any loudspeaker or earphone connected to or through the RETRANSMIT R/W or SPKR receptacles on the front panel of the R–T.

NOTE: It does not control the volume of any signal connected through the receptacles located on the underside of the R–T mount.

OPERATOR'S CONTROLS (continued)

SQUELCH OPERATION



What is SQUELCH?

When you are listening to an fm receiver, you will hear a constant rushing sound until the distant transmitter is keyed.

When the distant transmitter stops transmitting, the rushing and hissing sound returns.

With SQUELCH, your receiver is **silenced** during the time the transmitter is not keyed. When the distant transmitter is keyed, your receiver SQUELCH circuits are automatically disabled and you are able to hear the message.

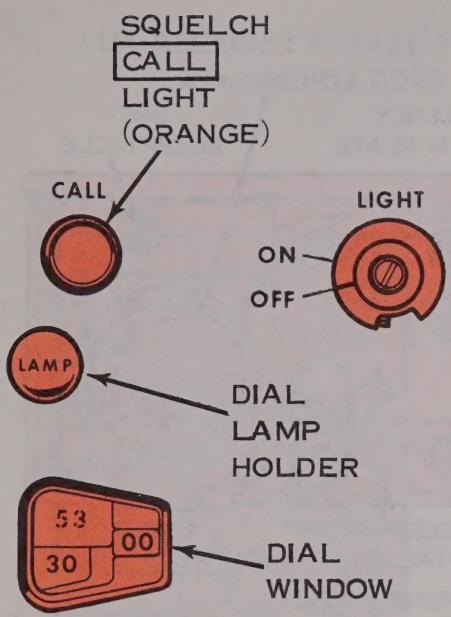
New radio sets like the AN/VRC-12 series have a new squelch design to automatically disable the distant receiver SQUELCH circuits. Operating with newer sets or another AN/VRC-12 series set is normally done with all receiver and transmitter SQUELCH controls in the NEW positions.

You may be asked to communicate with some older types of radio sets that use an old design for disabling receiver SQUELCH circuits.

Operating your AN/VRC-12 type radio set with older sets is done with the receiver and transmitter SQUELCH controls in the OLD positions.

A latch allows you to restrict the SQUELCH switch movement to OLD or NEW squelch operation.

OPERATOR'S CONTROLS (continued)



LIGHT switch.
Controls power to dial window lamp and squelch CALL indicator lamp.

CALL indicator.
During SQUELCH operation, lights up to indicate a signal is being received.

SQUELCH switch must be in NEW ON or OLD ON.

LIGHT switch must be ON.

LAMP holder.
Contains lamp to light up the dial when LIGHT switch is ON.

ANT CONT receptacle.
Connection is made from this receptacle to the base of the compact antenna or box base antenna.

Whenever you change frequencies, the proper circuits in the antenna base are automatically selected.

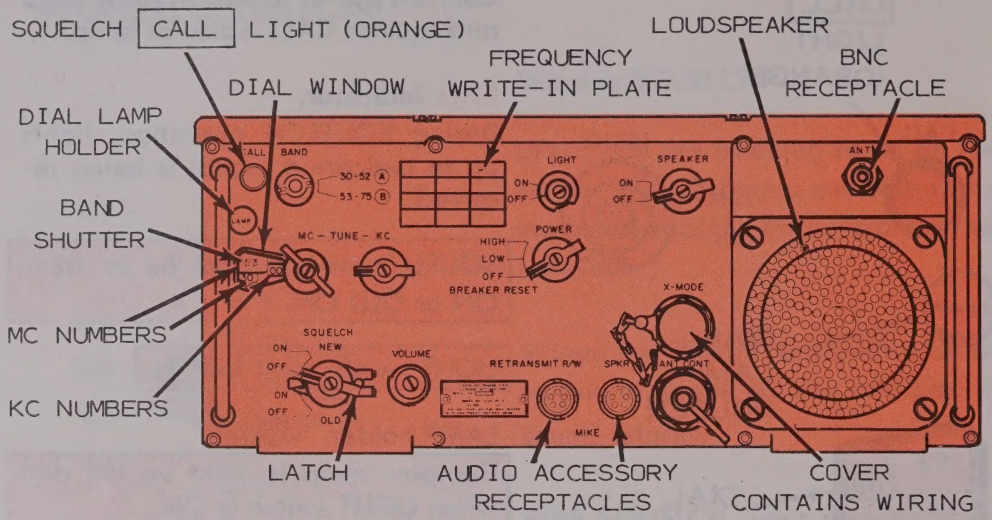
ANT receptacle.
The R–T antenna cable is connected to this receptacle.

POWER/AUDIO plug (located on the rear of the R–T)

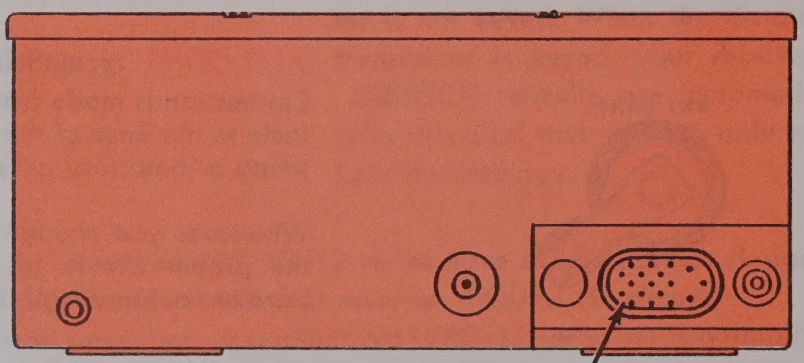
This is the main channel for power to the R–T, and for the passage of the dc power and control and audio signals between the R–T and other equipment cabled to the underside of the mount.

OPERATOR'S CONTROLS (continued)

Receiver-Transmitter RT-524(*)/VRC operator's controls, indicators and receptacles.



A. FRONT PANEL.



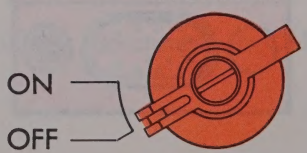
POWER/AUDIO RECEPTACLE (P401)
(TO RECEPTACLE ON MT-1029/VRC)

B. REAR VIEW.

The RT-524(*)/VRC operator controls, indicators and receptacles are identical to those in the RT-246(*)/VRC except for PUSHBUTTON TUNING and REMOTE CONTROL.

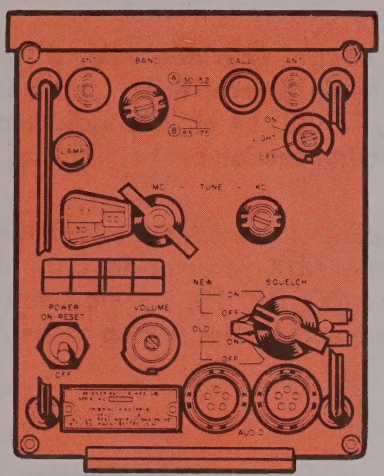
The RT-524(*)/VRC has a built-in loudspeaker and a SPEAKER switch which controls the built-in loudspeaker.

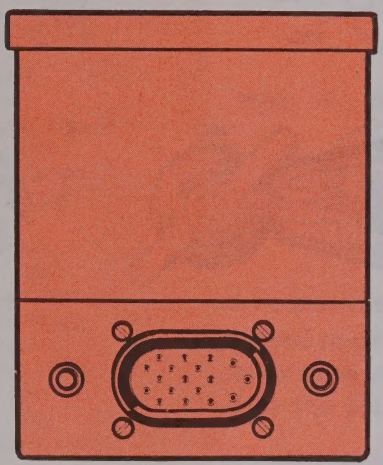
SPEAKER.



OPERATOR'S CONTROLS (continued)

AUX RECEIVER R-442(*)/VRC OPERATOR'S CONTROLS, INDICATORS AND RECEPTACLES





POWER switch
ON-RESET turns on dc power to the AUX receiver; and resets built-in circuit breaker when it is tripped.

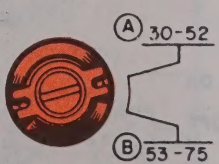
OFF turns off power to the AUX receiver.

POWER
ON-RESET

BAND switch.
Ⓐ **30-52** position sets up AUX receiver for tuning band A (30.00 mHz to 52.95 mHz).

Ⓑ **53-75** position sets up AUX receiver tuning and B (53.00 mHz to 75.95 mHz).

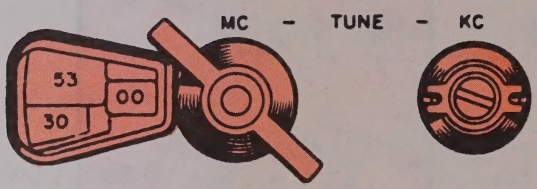
BAND



OPERATOR'S CONTROLS (continued)

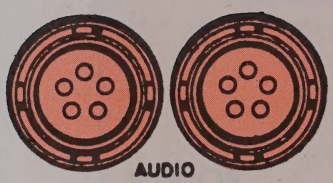
MC-TUNE-KC controls and dial indications.

Your AUX receiver can only be tuned **manually.**



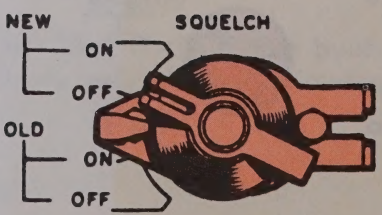
MC control provides manual tuning of the AUX receiver in 1 mHz steps (30, 31, 53, 54 etc.) as indicated on the outer section of the dial.

KC control provides manual tuning of the AUX receiver in 0.05 mHz steps (00, 05, 10, 15 etc.) as indicated on the inner section of the dial.



AUDIO accessory receptacles.
During normal operation, your audio accessories may be connected to the two AUDIO receptacles in the combinations shown throughout this technical manual.

VOLUME control.
You can adjust the volume level to any audio accessory loudspeaker or earphone connected to the AUDIO receptacles on the AUX receiver front panel.



SQUELCH control.
The AUX receiver SQUELCH control is operated in the same way as the SQUELCH control on the R-T.

ACROSS

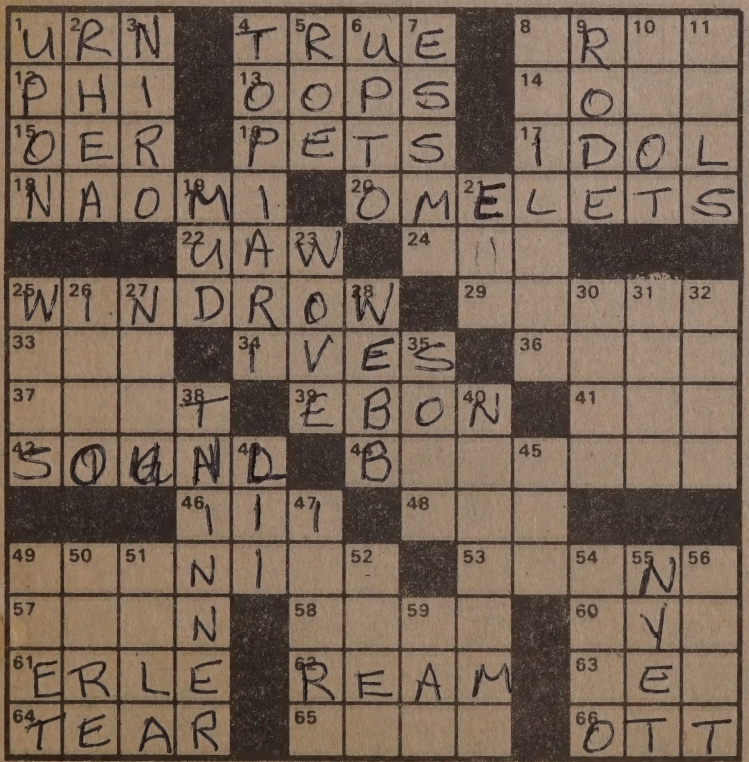
1 Flower holder
4 Undeniable
8 Server
12 ___ Beta Kappa
13 Fumbler's exclamation
14 Whet
15 Over (poet.)
16 Cats and dogs
17 Person loved to excess
18 Ruth's companion
20 Breakfast food
22 Auto workers' union (abbr.)
24 Hoodlum
25 Line of hay
29 Tinkling sound
33 Oxalis plant
34 Actor Montand
36 Central American oil tree
37 Rolls out
39 Black
41 I possess (cont.)
42 One of the senses
44 Actor Charles ___
46 3, Roman
48 Own (Scot.)
49 Equality State
53 Moved back and forth
57 Actress Celeste ___
58 In ___ (as a whole)
60 Unit of light
61 Author Gardner
62 Paper quantity
63 Agnus ___
64 Lacerate
65 Heraldic border
66 Baseball player Mel ___

DOWN

1 On top of
2 Ostrich
3 Actor Robert De ___
4 Shrub-training art
5 Spawn
6 Capable of (2 wds.)
7 Literary composition
8 Sewing need
9 Went by car
10 Celebes ox
11 Call
19 Wet ground
21 Highest part
23 Made fabric
25 Ills
26 Missile abbr.
27 Local movie theater (sl.)
28 Jack ___ of "Dragnet"
30 Large wading bird
31 De ___: again
32 Sharp
35 Bird
38 Not so fat
40 Harmful
43 52, Roman
45 Compass point
47 Preface
49 Sharpen
50 Past time
51 Water jug
52 Patron
54 Hair style
55 Soviet refusal
56 Stone texture
59 Hindu cymbals

Answer to Previous Puzzle

W	R	E	S	T			W	R	E	A	K	
Y	E	S	S	E	D		T	H	O	R	P	E
N	I	N	E	T	Y		H	O	M	I	E	R
N	N	E		O	L	E	O	S		E	R	N
			G	N	A	R	L	E	D			
A	R	L	O		N	E	E		A	R	N	A
G	I	S	T						C	Y	A	N
A	T	A	T						R	A	P	T
R	A	T	E		M	I	A		O	N	E	S
			N	I	E	L	S	E	N			
M	M	M		T	A	L	K	S		M	I	T
Y	E	O	M	A	N		E	S	T	A	T	E
T	R	A	I	L	S		W	A	S	T	E	S
H	O	B	B	Y				Y	E	A	R	S



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For a copy of the amended Fair Housing Act published by the American Newspaper Publishers Assoc. call 454-9491.

The Repository

Deville Apts. Super nice 2 story 2BR, bsmt, range. Children or pet ok. 824-14th St SW, Mass. $300. 477-1460, 837-1182

Modern country 1 br. duplex. Brewster, 506 Mohician. Appliances. $215 mo. + utils. dep. & reference. 1-337-3639

N. Canton, 208½ Summit SE. 6 rooms, 1 garage. No laundry hookup. Non-smokers only. $325 + utils, deposit & ref. 494-1633

NEWLY REMDDELED
6 room, 3 bedroom townhouse available in NE Canton. $300. 492-8313, 875-1993.

No vacancies at this time on Kaiser NE. 492-3429

One bedroom duplex, 2528 43rd NW. Refrigerator & stove furnished. Call 868-7762 or 868-7770.

Waynesburg, small 2 BR duplex, very efficient, new appliances, no pets, Section 8 approved. Rent + deposit. 866-9718

3 br., 615 Prospect SW, $335/mo. + dep., heat included, Section 8 welcome. Call 837-2658 anytime

4 rooms & bath duplex, air, auto garage door opener. Perry area. 478-0589

400-6th SW, 1 or 2 BR, all utilities paid. No inside pets. $210. 456-8428, 477-4330

835 High NW. 1 or 2 bedroom duplex with garage & appliances. Heat paid. $280/mo + deposit. Call 455-2738.

900 Shorb NW. 1 BR duplex. $170 month plus security deposit. 494-6215

710 Unfurnished Apartments

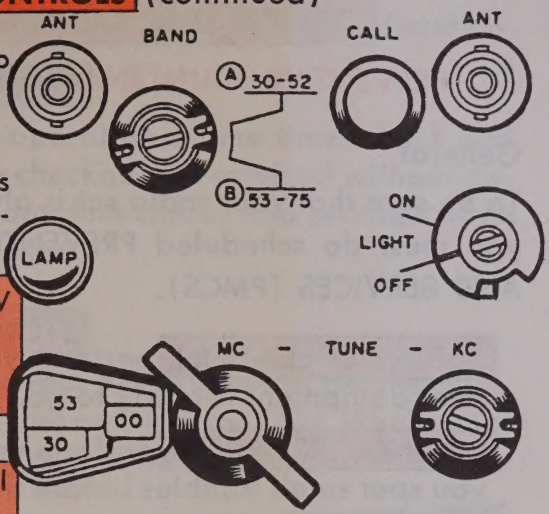
SHAKERTOWN I WE'VE CHECKED

Shakertown offers the most in apartment living: fireplaces, lofts, carports, and garages. Convenient location on beautiful wooded lot.
The nicest place to call home.
494-6596
(Located at Fulton and Brunnerdale)

OPERATOR'S CONTROLS (continued)

LIGHT switch.
Controls power to dial window lamp and squelch CALL indicator lamp.

CALL indicator.
During SQUELCH operation, lights up to indicate a signal is being received.

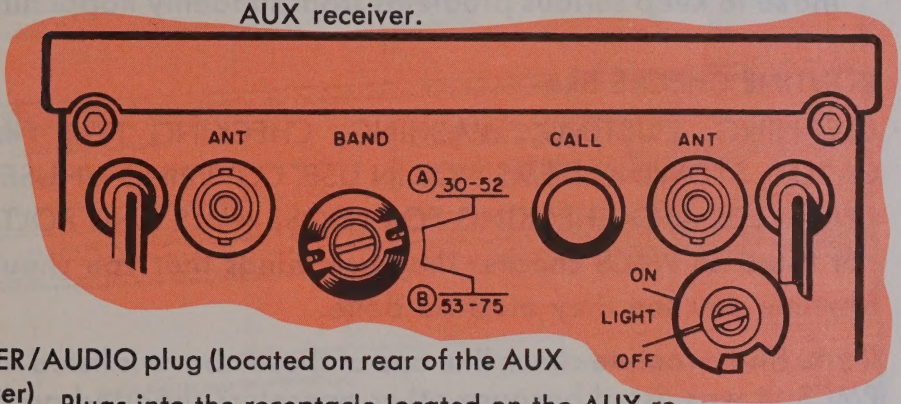


SQUELCH switch must be in NEW ON or OLD ON.

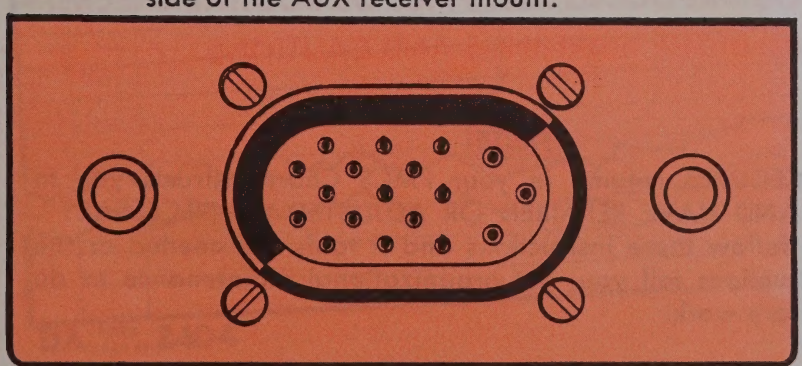
LIGHT switch must be ON.

LAMP holder.
Contains lamp to light up the dial when LIGHT switch is ON.

ANT receptacle (two connected in parallel).
The AUX receiver antenna is connected to one of these receptacles. If two AUX receivers are used, the other receptacle is connected to the second AUX receiver.



POWER/AUDIO plug (located on rear of the AUX receiver)
Plugs into the receptacle located on the AUX receiver mount. This is the main channel for AUX receiver power and for the passage of AUX receiver signals to equipment cabled to the underside of the AUX receiver mount.



SECTION II

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

General

To be sure that your radio set is always ready for your mission, you must do scheduled PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

BEFORE OPERATION, perform your B PMCS to be sure that your equipment is ready to go.

DURING OPERATION, perform your D PMCS. This should help you spot small troubles before they become big problems.

AFTER OPERATION, perform your A PMCS. This should help keep your equipment in top shape.

WEEKLY AND MONTHLY PMCS are important checks you make to keep serious problems from suddenly happening.

ROUTINE CHECKS like:

CLEANING, DUSTING, WASHING, CHECKING FOR FRAYED CABLES, STOWING ITEMS NOT IN USE, COVERING UNUSED RECEPTACLES AND CHECKING FOR LOOSE NUTS AND BOLTS are not listed as PMCS checks. They are things that you should do anytime you see they must be done.

If you find a routine check like one of those above is listed in your PMCS, it was listed because other operators reported problems with this item.

WHEN YOU ARE DOING ANY PMCS OR ROUTINE CHECKS, KEEP IN MIND THE WARNINGS AND CAUTIONS.

NOTE

The PROCEDURES column in your PMCS Chart instructs you to "CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY". Carefully follow these instructions and if tools are needed or the chart instructions tell you, get organizational maintenance to do the necessary work.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont'd)

NOTE

If your equipment must be in operation all the time, check and service those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

NOTE

Use the ITEM NO. column in your PMCS table to get the numbers for the TM ITEM NO. column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) when you fill out the form.

EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET

For use of this form, see TM 38-750; the proponent agency is the Office of the Deputy Chief of Staff for Logistics.

1. ORGANIZATION		2. NOMENCLATURE AND MODEL				
3. REGISTRATION/SERIAL/FSN	4a. MILES	b. HOURS	c. ROUNDS FIRED	d. HOT STARTS	5. DATE	6. TYPE INSPECTION

APPLICABLE REFERENCE

7. TM NUMBER	TM DATE	TM NUMBER	TM DATE

INSTRUCTIONS - Perform each check listed in the TM applicable to the inspection performed. Following the sequence listed in pertinent TM, complete form as follows:

COLUMN a - Enter TM item number.

COLUMN b - Enter the applicable condition status symbol.

COLUMN c - Enter deficiencies and shortcomings.

COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.

COLUMN e - Individual ascertaining completed corrective action initial in this column.

ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.

8a. SIGNATURE (Person(s) performing inspection)	8b. TIME	9a. SIGNATURE (Maintenance Supervisor)	9b. TIME	10. MANHOURS REQUIRED

TM ITEM NO. a	STATUS b	DEFICIENCIES AND SHORTCOMINGS c	CORRECTIVE ACTION d	INITIAL WHEN CORRECTED e
3		Antenna tip caps will not		

USE PMCS ITEM NO.

DA FORM 1 JAN 64 2404

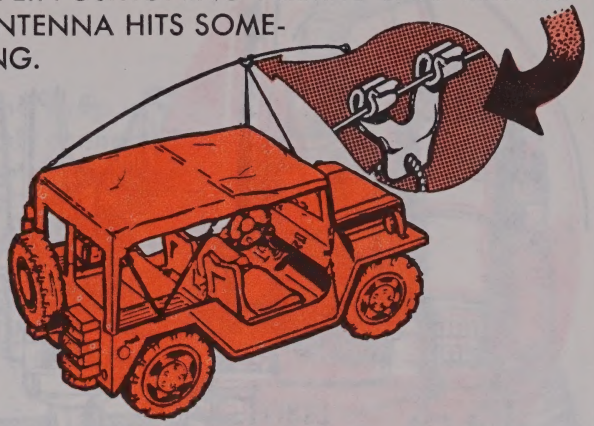
TABLE 2–1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES

NOTE: THE CHECKS IN THE "INTERVAL" COLUMN ARE TO BE PERFORMED IN THE ORDER LISTED.

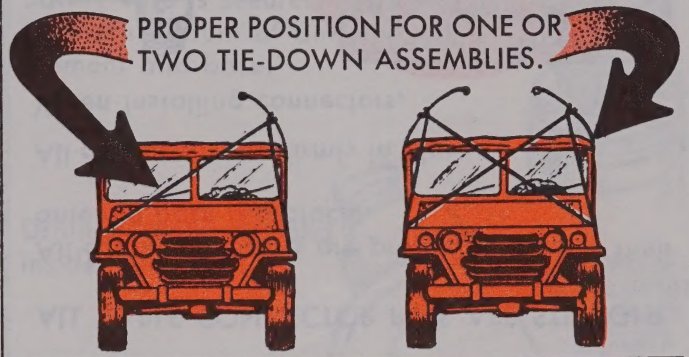
B—BEFORE OPERATION
D—DURING OPERATION
A—AFTER OPERATION
W—WEEKLY
M—MONTHLY

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
						All Antenna Systems	WARNING DO NOT TRANSMIT ON THE RADIO WHILE HANDLING THE ANTENNA.	
1	✸		✸	✸		Elements	Check to see that elements are not split. Replace defective elements.	
2					✸	Element Threads	Clean and lubricate threads.	
3	✸	✸	✸	✸		Tip	Check to see that the tip cap is in place on the top section. 	
4	✸	✸	✸	✸		Tie-down	Check to see that the tie-down assembly is adjusted to properly hold down the antenna.	Antenna cannot be used while vehicle is in motion.

PROPER POSITIONING PERMITS SAFE RELEASE IF ANTENNA HITS SOMETHING.



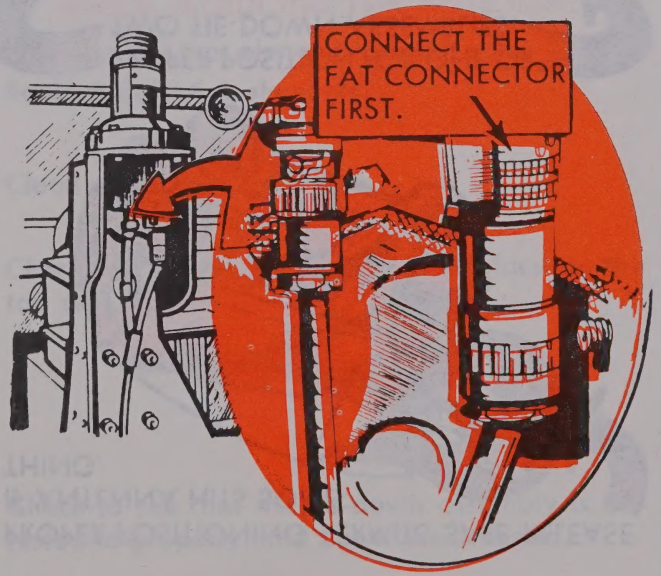
PROPER POSITION FOR ONE OR TWO TIE-DOWN ASSEMBLIES.



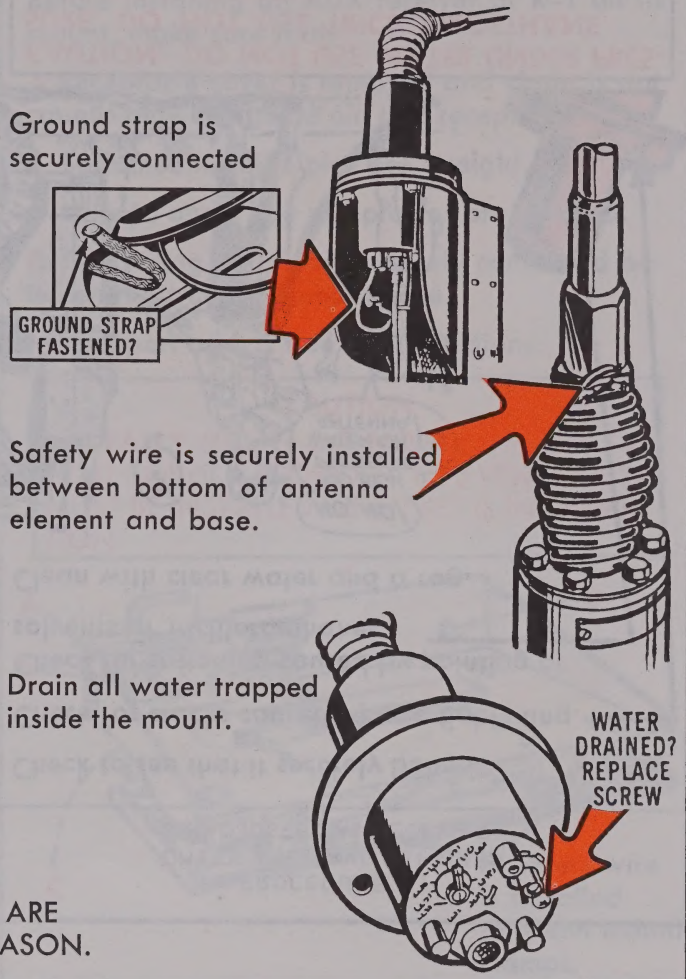
CAUTION

When pulling the antenna down, make sure that the tip is above any pedestrian and that it will not swing beyond the side of the vehicle.

TABLE 2-1 PMCS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
5	✸			✸		Cable Connections	ALL CABLE CONNECTOR PINS ARE STRAIGHT. All cable connectors are properly keyed in their antenna base receptacle. All connectors are firmly in place. When installing connectors,  	Thin connector (on cable CG-1773/U) cannot be connected to antenna base.

				Compact Antenna	
6	✸		✸	Ground Strap	Ground strap is securely connected
7	✸		✸	Safety Wire	Safety wire is securely installed between bottom of antenna element and base.
*8			✸	Water Drain	Drain all water trapped inside the mount.



* DO THIS STEP MORE OFTEN IF YOU ARE OPERATING DURING THE RAINY SEASON.

TABLE 2-1 PMCS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
9	✸			✸		Matching Unit	Check to see that it securely bolted. Check for cracks caused by overtightening. Check for softening caused by painting or solvents or trichloroethane. Clean with clear water and a rag. **CAUTION: DO NOT USE WATER UNDER PRESSURE, DO NOT USE TRICHLOROETHANE, AND DO NOT PAINT.**	

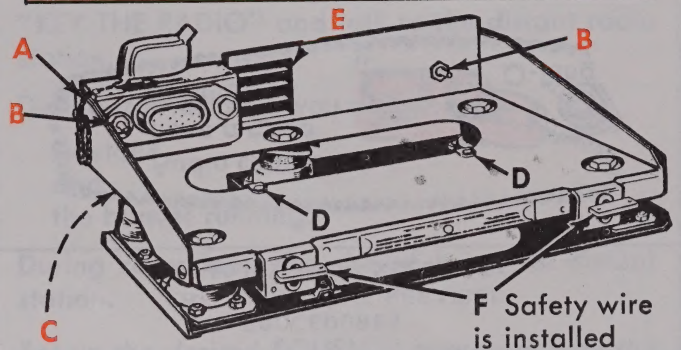
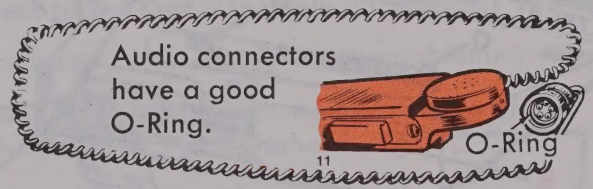
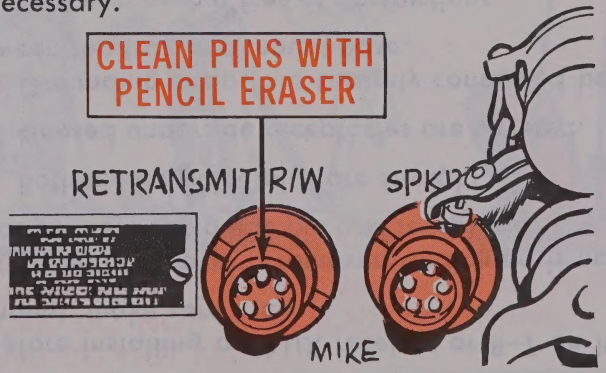
10	✸		✸			All R–T and AUX Receiver Mounts.	Before installing an AUX receiver or R–T on its mount, make sure that: **A** Receptacle cover is removed and chain is not caught between guide pin and receptacle. **B** Both mount guide pins are straight. **C** Unused underside receptacles are covered. **D** Grounding straps are securely connected between top tray and mount base. **E** Vent port area is free of obstructions. **CAUTION** ON EARLY MODEL R–T MOUNTS, A SPECIAL VENT COVER IS PROVIDED. THIS VENT COVER MUST BE INSTALLED WHEN SET IS IN OPERATION.  **F** Safety wire is installed between mount clamps.	R–T cannot be securely clamped in its mount.

TABLE 2–1 PMCS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
						Audio Accessories		
11	✸					O-Rings		
12					✸	Lubrication	O-Ring has a light coat of silicon grease. Use MIL–M–8660.	
13	✸					Moisture Barriers	If used, moisture barriers are in place.	
14					✸	Receptacles	Check for corrosion. Clean with pencil eraser if necessary. 	

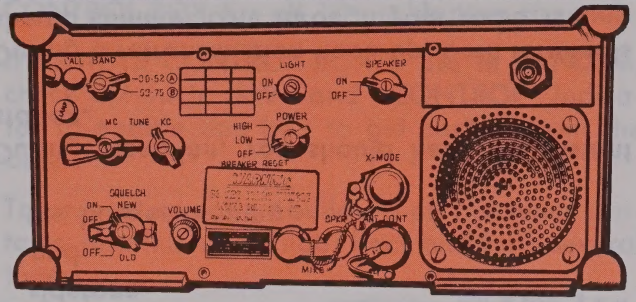
15		✸		✸			Receiver-Transmitter Basic Operation	With audio accessories connected to the front panel and R–T turned on and tuned to the assigned frequency: **WARNING** DO NOT START VEHICLE WHILE RADIO IS ON. START VEHICLE BEFORE TURNING ON THE RADIO.  "KEY THE RADIO" and talk to the distant radio station. During transmission, you should hear: sidetone and the blower running. During reception, you should hear the distant station. Set-up the desired SQUELCH operation with the distant sation, and verify CALL lamp operation.	Distant station cannot hear you or you cannot hear sidetone or the blower running. You cannot hear the distant station.

TABLE 2-1 PMCS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
16		✸		✸		R-T Operation with Radio Relay Box	With audio accessories connected to the RELAY box,	
							communicate with the distant station.	Distant station cannot hear you or you cannot hear sidetone or the blower running.
							During transmission, you should hear sidetone and the blower running.	
							During reception, you should hear the distant station.	You cannot hear the distant station.
							During a retransmission hook-up, both terminals should communicate through your radio set.	Retransmission is not satisfactory in both directions.
17		✸		✸		Pushbutton Operation (RT-246(*)/ VRC Only.)	With pushbuttons preset to assigned frequencies, establish communications with a distant station on each pushbutton channel.	
							Check out normal transmission, reception and SQUELCH operation on each pushbutton channel.	

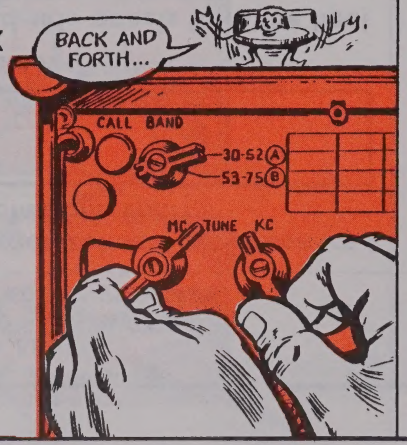
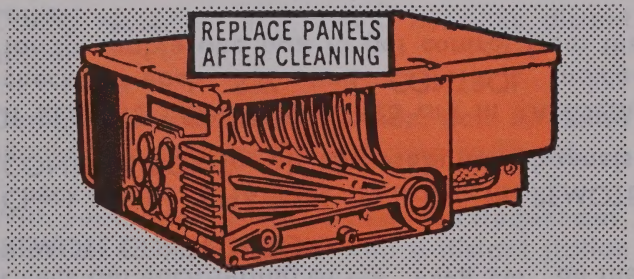
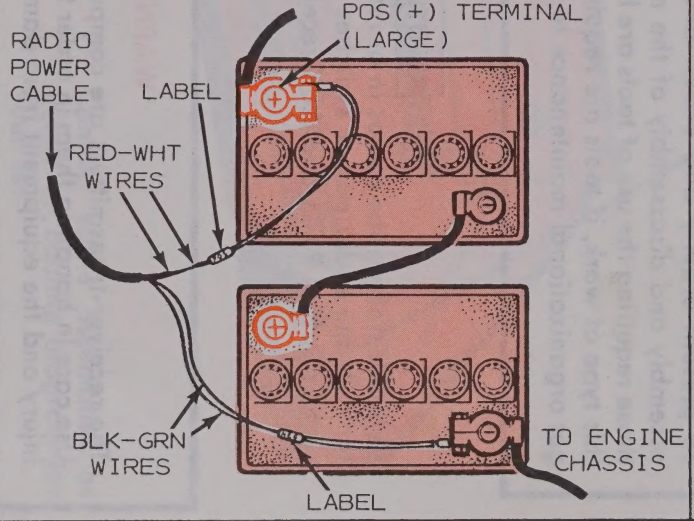
18		✸		✸		R–T Operation with REMOTE CONTROL BOX (RT–246 (*)/VRC only)	With satisfactory pushbutton operation and REMOTE CONTROL BOX connected to the R–T: Check out each setting of the PWR SW on the REMOTE CONTROL BOX. Check out the CHAN SEL switch on the REMOTE CONTROL BOX for all 10 pushbutton channels. If REMOTE CONTROL BOXES are in TANDEM, check out each SW and CONTROL indicator to enable one box to get control from the other.
19					✸	R–T Tuner Contacts	To prevent corrosion build-up on the tuner contacts, turn the tuner knobs back and forth several times. If you have an AUX receiver, do the same to its tuner knobs. 

TABLE 2–1 PMCS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
*20					✸	Receiver-Transmitter Cooling	With help from organizational maintenance: Remove the R–T from its mount. **CAUTION** MAKE SURE POWER TO RADIO IS TURNED OFF Lay the R–T on one side. Remove the back and side panels from the heat exchanger. Carefully clean both the vanes and squirrel cage fins (a toothbrush is OK).  Install R–T on its mount. **CAUTION** MAKE SURE R–T PLUG PINS ARE NOT BENT OR MISSING	

*DO THIS STEP MORE OFTEN IF YOU ARE OPERATING IN A DUSTY AREA.

21		✸		✸		AUX Receiver Operation	With AUX receiver turned on and tuned to the assigned frequency, have the distant radio station transmit to you. During reception, you should hear the distant station. Set-up the desired SQUELCH type of operation and verify CALL lamp operation.	You cannot hear the distant station.
22	✸		✸			Vehicle Battery Compartment	Check to see that the: Battery terminals are not corroded. Radio power cable lugs are securely connected to the battery. Radio power cable leads are tagged.  	Radio power cable lugs cannot be securely connected.

SECTION III

OPERATION UNDER USUAL CONDITIONS

INSTALLATION, ASSEMBLY AND DISASSEMBLY OF MAJOR ITEMS

NOTE

To present orderly and understandable steps for the installation, assembly and disassembly of the major items, ALL steps including those requiring the use of tools are listed. When you are asked to do this type of work, if tools are required or this manual instructs you, get organizational maintenance to do the necessary steps.

CAUTION

Before installing the radios in or removing them from radio mounts, turn off the radio power switches in the system. Turn off POWER switches of all R–T's and AUX receivers.

WARNING

The receiver-transmitters are compact and heavy (over 50 pounds). Use care in handling them in order to protect personnel from serious injury and the equipment from damage.

CAUTION

Do not lay the R–T on its back. This may damage the blower assembly. Lay it on one side.

CAUTION

When pulling the receiver-transmitter from the MT–1029/VRC, grasp both guards (or handles) to pull the unit from the radio mount, and continue to use both hands to lift and carry the unit. NEVER CARRY OR LIFT THE RECEIVER-TRANSMITTER BY ONLY ONE OF THE GUARDS (OR HANDLES).

INSTALLATION OF MAJOR ITEMS

1 R–T INSTALLATION

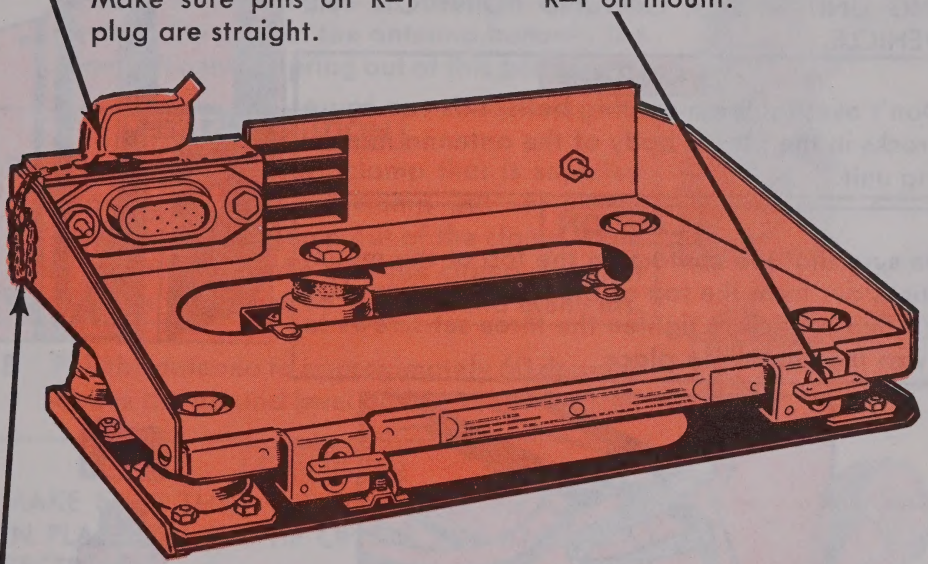
A Before placing R–T on its mount, clean mount.

B Remove receptacle cover. Make sure pins on R–T plug are straight.

C Make sure chain for receptacle cover is not between guide pins and mount receptacle.

D Lift R–T on mount and carefully push it back to seat its plug in the mount receptacle.

E Tighten mount clamps to lock R–T on mount.



F Connect cable assemblies as shown on cabling diagram for your set.

CAUTION

Be sure a safety wire is installed between the mount clamps.

2 R–T REMOVAL

A Remove all front cable connections

B Loosen mount clamps

C Remove R–T from mount

D Cover or cap open receptacles on mount.

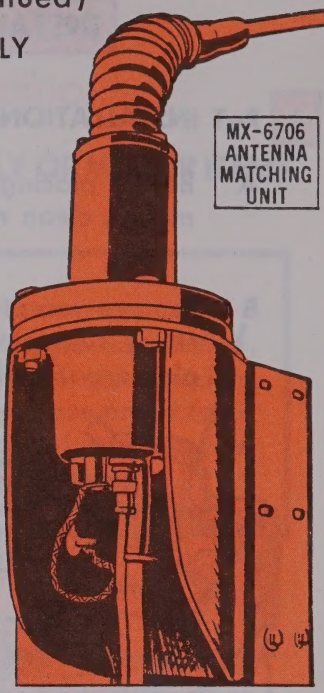
3 AUX RECEIVER INSTALLATION AND REMOVAL

A Follow the R–T procedures.

INSTALLATION OF MAJOR ITEMS (continued)

4 COMPACT ANTENNA (AS-1729/VRC) ASSEMBLY AND INSTALLATION.

A Install matching base on vehicle mount. Tighten mounting bolts. Connect ground strap.



CAUTION

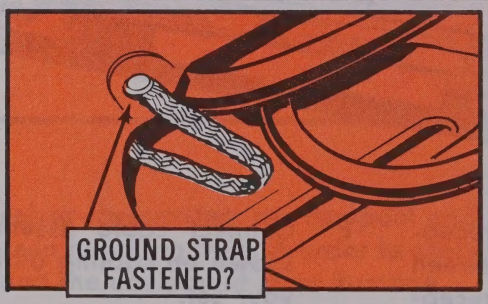
BE SURE THAT A GROUND STRAP IS FIRMLY CONNECTED BETWEEN THE ANTENNA MATCHING UNIT AND A GROUND POINT ON THE VEHICLE.

CAUTION

Don't overtighten mounting bolts; this can cause cracks in the plastic body of the antenna matching unit.

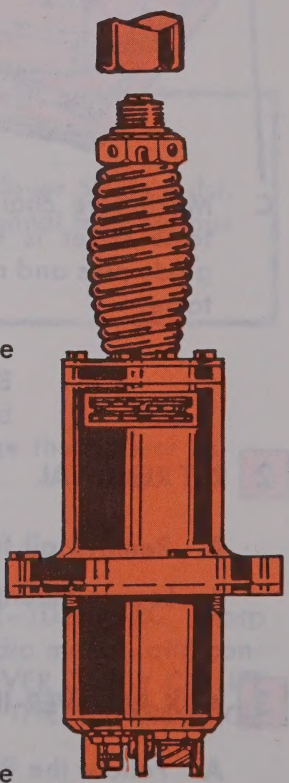
CAUTION

Be sure that the contact on the top of the mount sticks out from the top of the spring section. Use a Allen wrench to tighten the three set screws to keep the contact in place.



B Connect supplied cables.

C Screw the top antenna section fully into the bottom section.



CAUTION

Apply graphite grease to the threads of the antenna sections to make removal easier. This also helps to prevent rusting together if they are not separated for a long time.

CAUTION

If the two antenna elements come loose, wrap a few turns of electrical insulation tape around the joint.

D Screw the bottom section into the top of the spring section on the mount.

INSTALLATION OF MAJOR ITEMS (continued)

E Connect safety wire between the bottom antenna section and the antenna mount.

5 TIE-DOWN PROCEDURES (APPLIES TO ALL ANTENNAS).

A Slide the V-shaped clamp of tie-down assembly to the middle of the top antenna section. Do not put the antenna beneath the clamp; it cannot spring out of this position.

CAUTION

Do not use the tie-down clamp that is supplied with some vehicles if the clamp will not permit the whip antenna to jump out of the clamp when it hits something. Make sure the clamp does not cut into the fiberglass on the antenna elements.

B Pull the antenna to approximately 60 degrees above the ground level and tie to the vehicle.

CAUTION

MAKE SURE THAT THE ANTENNA TIP CAP IS IN PLACE ON THE TIP OF THE TOP ANTENNA SECTION.

When two or more antennas are used do not cross them during tie down.

The antenna may be tied down when radio is in operation if communications can be maintained.

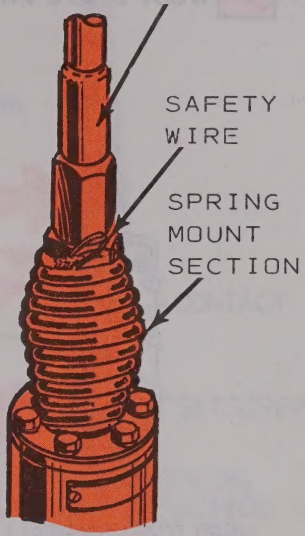
6 COMPACT ANTENNA DISASSEMBLY.

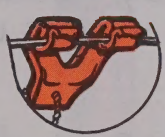
A Remove the tie-down assembly and unscrew the top antenna section from the bottom antenna section.

B To remove the bottom antenna section, remove the safety wire from the holes in the bottom antenna section. Leave the safety wire in the top of the antenna base.

C Store the removed antenna sections and tie-down assembly in a safe place.

D Cover or cap open receptacles

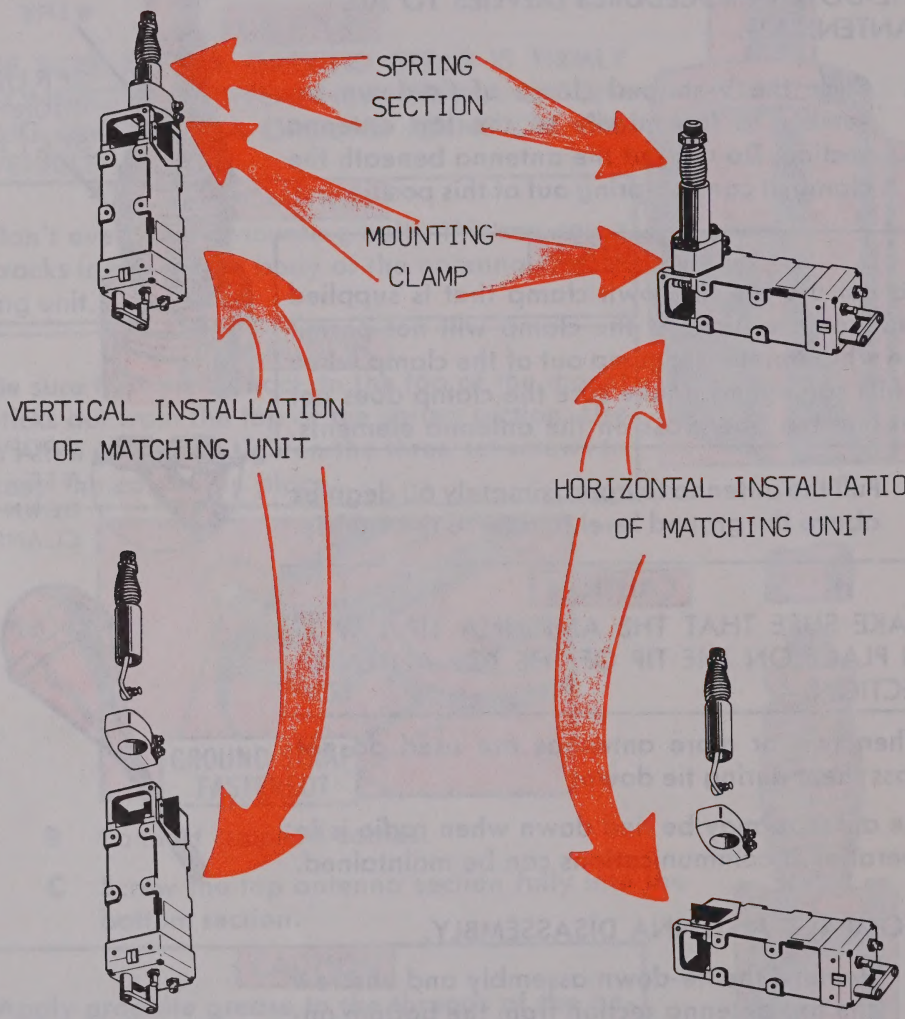




INSTALLATION OF MAJOR ITEMS (continued)

7 BOX BASE ANTENNA

TYPICAL POSITIONS



TOP SECTION

BOTTOM SECTION

INSTALLATION OF MAJOR ITEMS (continued)

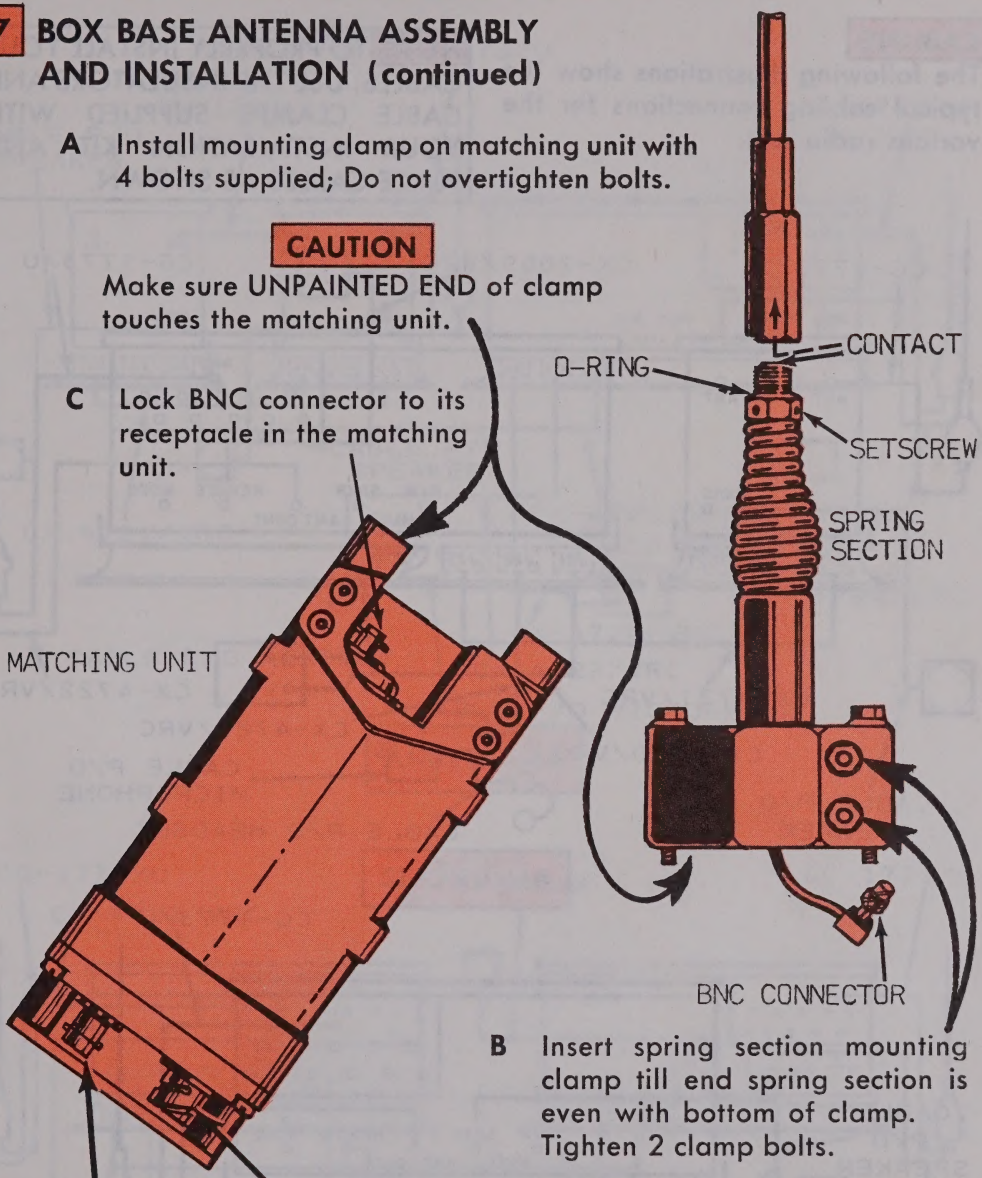
7 BOX BASE ANTENNA ASSEMBLY AND INSTALLATION (continued)

A Install mounting clamp on matching unit with 4 bolts supplied; Do not overtighten bolts.

CAUTION

Make sure UNPAINTED END of clamp touches the matching unit.

C Lock BNC connector to its receptacle in the matching unit.



B Insert spring section mounting clamp till end spring section is even with bottom of clamp. Tighten 2 clamp bolts.

D Check to see that the contact on top of the spring section sticks out from the top. Use an Allen wrench to tighten the three screws to keep the contact in place. O-ring should be in place.

E Connect the supplied cables.

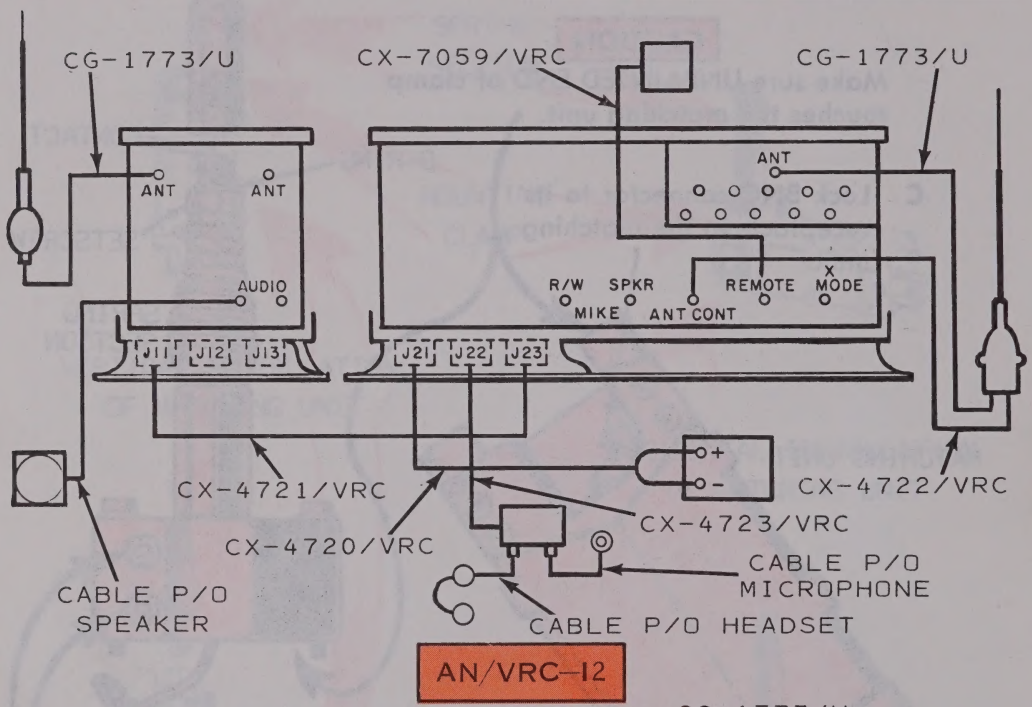
NOTE: Follow the COMPACT ANTENNA procedures for element installation, tie-down and disassembly.

ASSEMBLY AND PREPARATION FOR USE

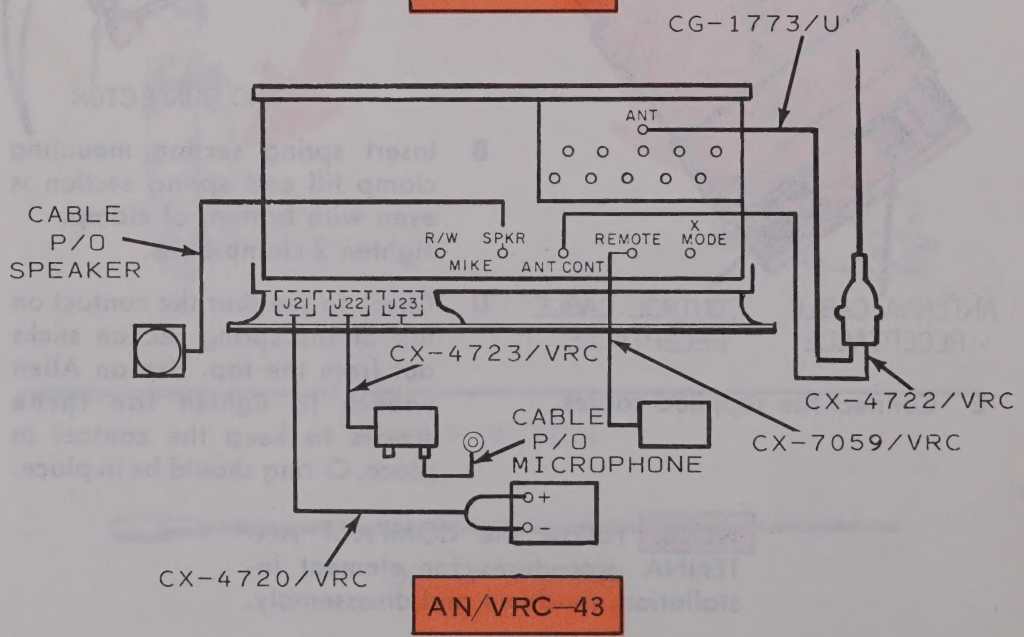
CABLING

The following illustrations show the typical cabling connections for the various radio sets.

NOTE: TO PROPERLY INSTALL YOUR CABLES, USE THE INSULATORS AND CABLE CLAMPS SUPPLIED WITH YOUR INSTALLATION KIT AND PLACE CABLES AS SHOWN.

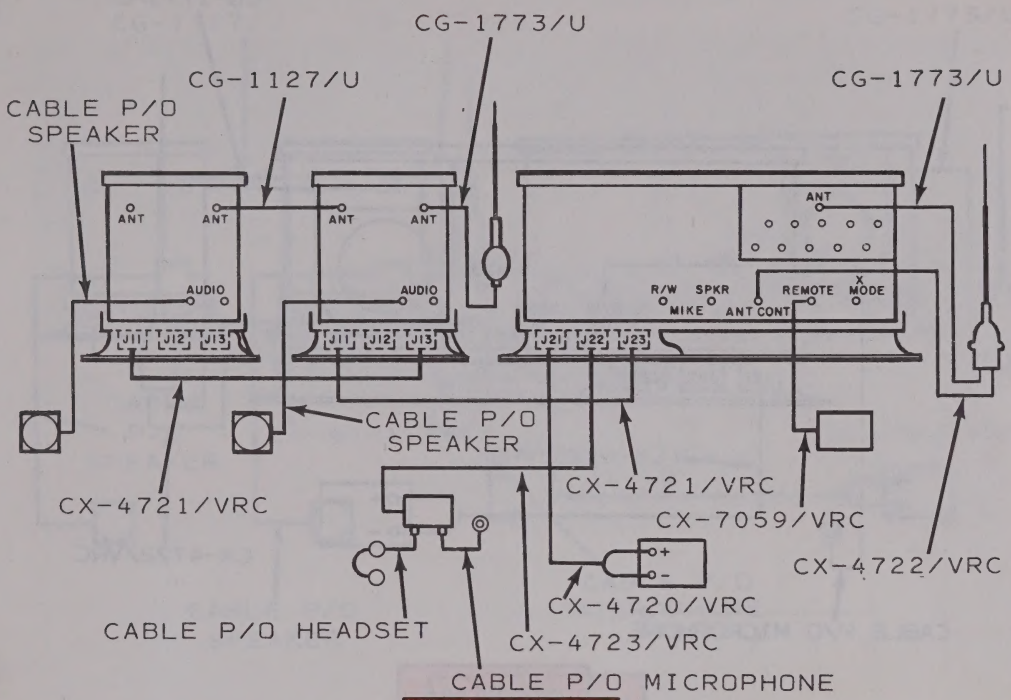


AN/VRC-12

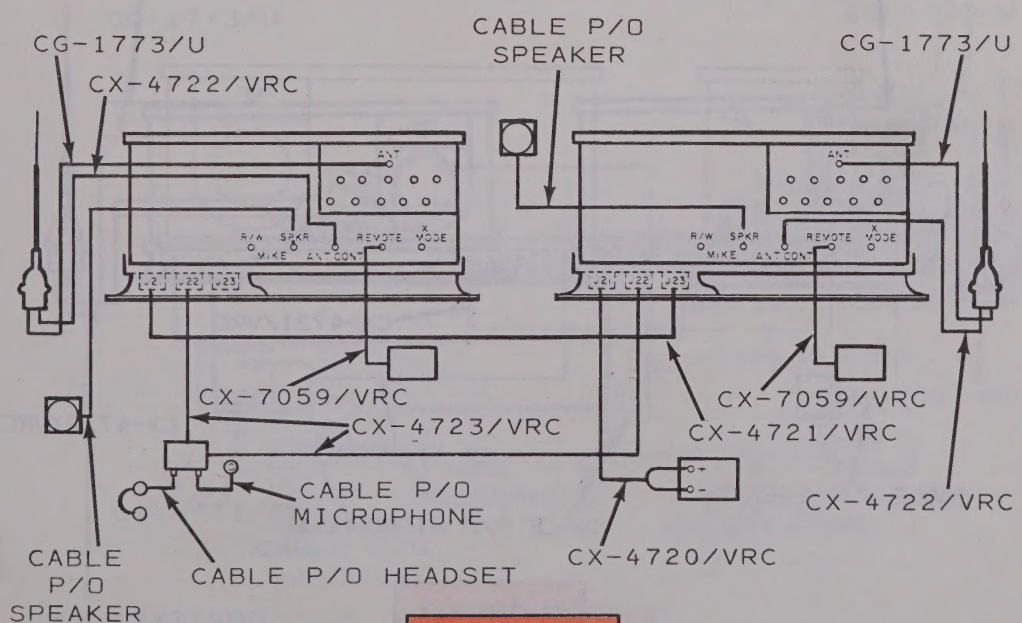


AN/VRC-43

CABLING (continued)

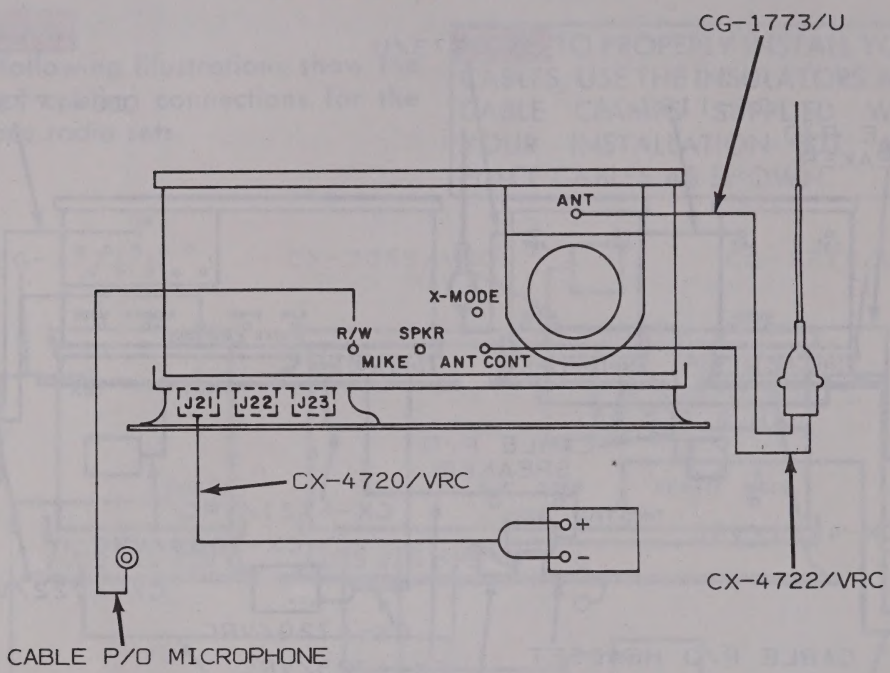


AN/VRC-44

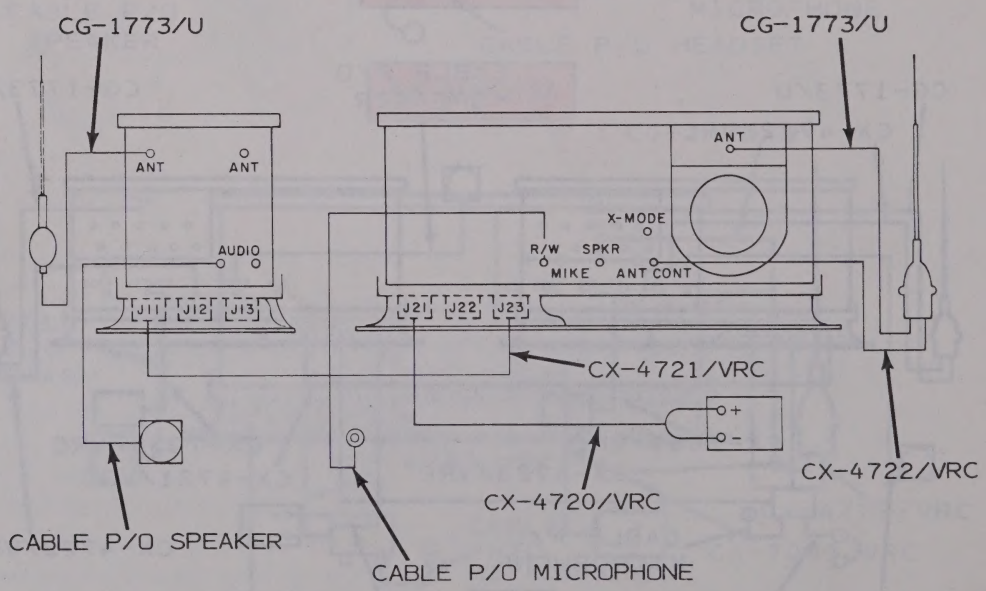


AN/VRC-45

CABLING (continued)

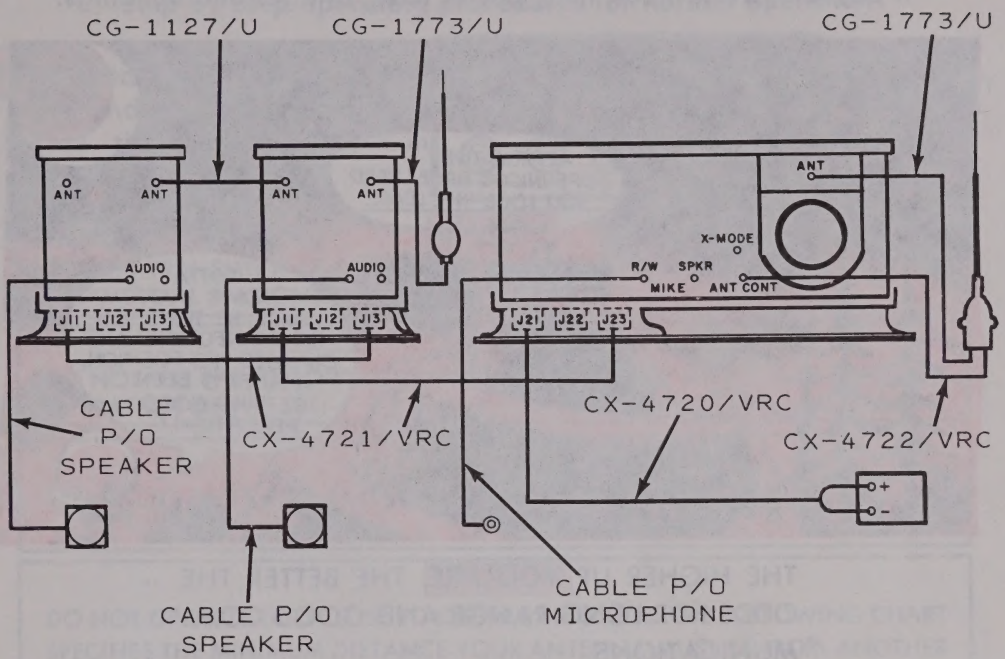


AN/VRC-46

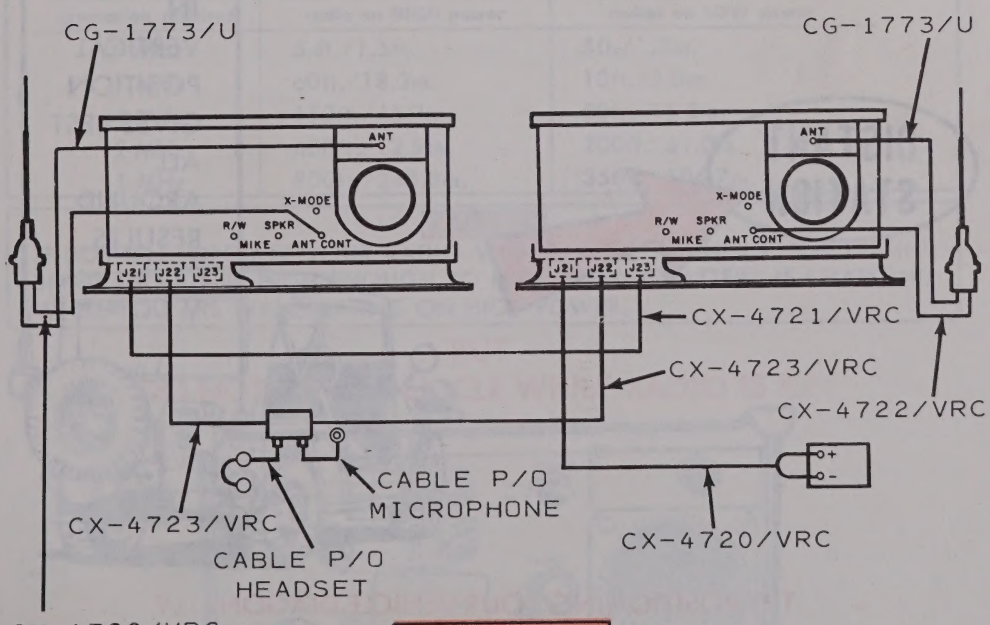


AN/VRC-47

CABLING (continued)



AN/VRC-48



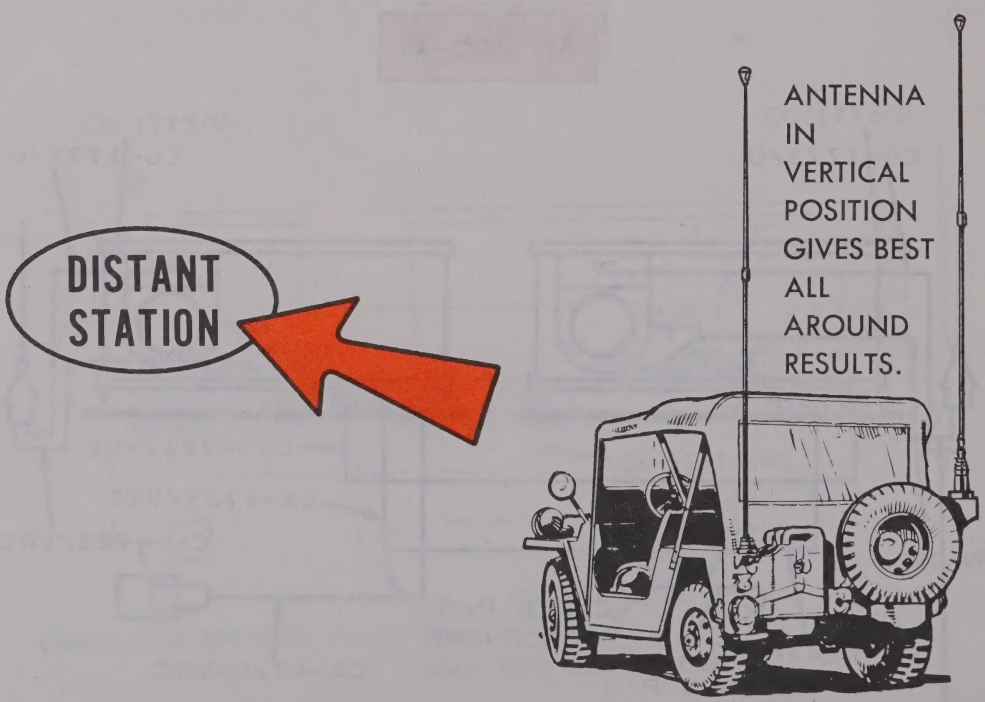
AN/VRC-49

SITING

If possible, avoid trees, hills, power lines, bridges and buildings.

AFFIRMATIVE, COPERNICUS BASE! READ YOU LOUD 'N' CLEAR.
GOTTA ADMIT THAT SINCE HE TIGHTENED HIS CONNECTIONS AND CHANGED HIS POSITION, NIELSEN'S BEEN GETTING GOOD RECEPTION!

THE HIGHER UP YOU ARE, THE BETTER THE ODDS FOR LONG RANGE AND GOOD COMMUNICATIONS.



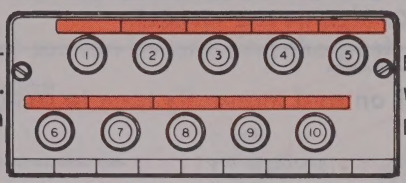
TRY POSITIONING YOUR VEHICLE DIAGONALLY OR POINTING IT TOWARDS THE DISTANT STATION. THIS MAY IMPROVE COMMUNICATIONS.

SECTION III

OPERATION UNDER USUAL CONDITIONS

Step by Step operating procedures for normal operation

1 First obtain your assigned operating and alternate frequencies. Write them on the write-in plates of your set.



FREQUENCY WRITE-IN PLATES

CAUTION

DO NOT TRANSMIT IT ON FREQUENCIES ASSIGNED TO OTHER RADIO SETS OR COMMERCIAL STATIONS.

CAUTION

DO NOT USE THE FOLLOWING FREQUENCIES BECAUSE THEY CAUSE IMPROPER OPERATION OF THE SET: — 33.90MHz – 45.20MHz – 56.50MHz – –67.80 MHz

CAUTION

DO NOT USE FREQUENCIES WHICH ARE SEPARATED EXACTLY 5.75 MHz or 23.00 MHz.

CAUTION

DO NOT OPERATE TOO CLOSE TO OTHER RADIO SETS. THE FOLLOWING CHART SPECIFIES THE **MINIMUM** DISTANCE YOUR ANTENNA MUST BE FROM ANOTHER ANTENNA WHILE OPERATING AT DIFFERENT FREQUENCY SEPARATIONS.

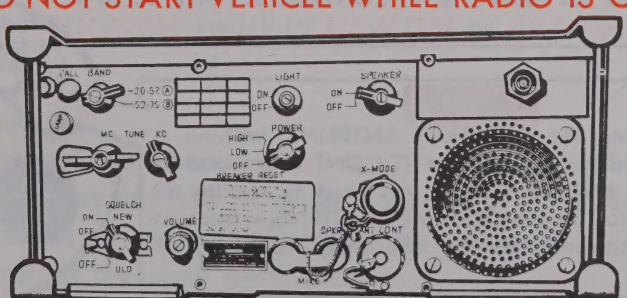
Minimum frequency separation required	Minimum antenna distance separation (whip antenna or RC-292)	
	Between AN/VRC-12 series radio on HIGH power	Between AN/VRC-12 series radios on LOW power
10 MHz	5 ft./1.5m.	5ft./1.5m.
7 MHz	60ft./18.3m.	10ft./3.0m.
4 MHz	150ft./45.7m.	50ft./15.2m.
2 MHz	400ft./12.9m.	200ft./61.0m.
1 MHz	800ft./243.8m.	350ft./106.7m.

CAUTION

IF POSSIBLE, OPERATE YOUR RADIO WITH ENGINE RUNNING. THE ENGINE SPEED SHOULD BE HIGH ENOUGH TO INDICATE THE BATTERY IS CHARGING WHILE YOU ARE TRANSMITTING ON HIGH POWER.

BUT

DO NOT START VEHICLE WHILE RADIO IS ON



NORMAL OPERATION (continued)

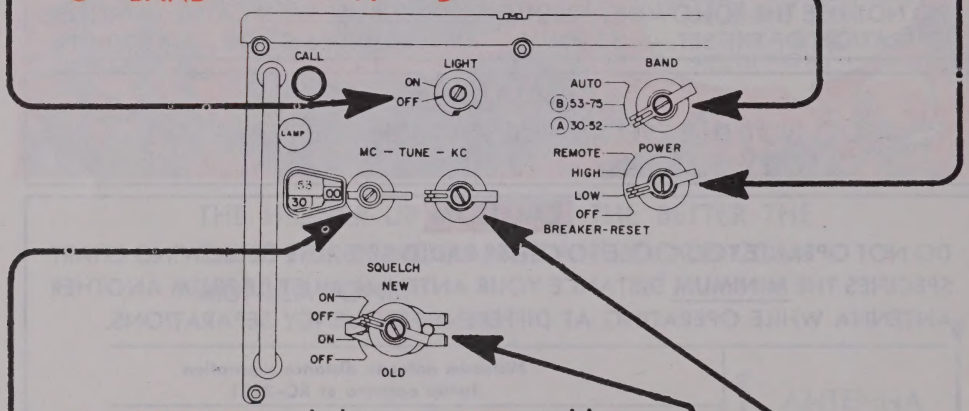
NOTE: THE FOLLOWING STEP-BY-STEP OPERATING PROCEDURES ARE BASED ON YOUR RADIO SET BEING PROPERLY INSTALLED AND CABLED IN THE VEHICLE.

2 Turn R–T on and manually tune to assigned frequency:

A POWER switch to LOW

B LIGHT switch to ON for dial light and power for CALL indicator lamp.

C BAND switch to A or B



D SQUELCH switch to any OFF position

E MC control for desired MHz number in dial window

F KC control for desired KHz number in dial window

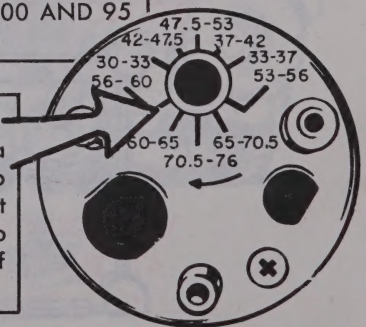
NOTE:
FOR BLACKOUT OPERATION, THE LIGHT SWITCH IS SET TO OFF

CAUTION

IN SOME UNITS OF THE RT–524/VRC, THE KC CONTROL CANNOT BE TURNED BEYOND THE LIMITS OF 00 AND 95 POSITIONS. TO PREVENT DAMAGE TO THE CONTROL MECHANISMS OF THESE UNITS, DO NOT ATTEMPT TO TURN THE KC CONTROL BEYOND 00 AND 95 POSITIONS

CAUTION

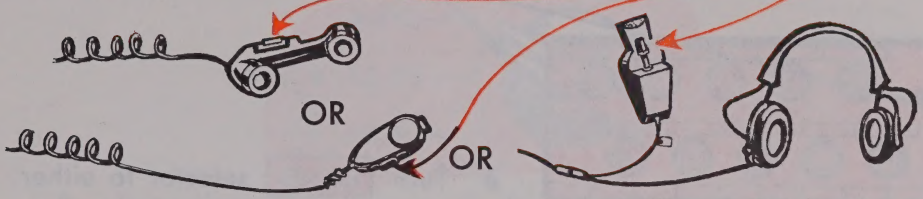
If you are using the COMPACT ANTENNA **without** a cable connected from the R–T ANT CONT receptacle to the COMPACT ANTENNA base, you must manuallly set the band control on the COMPACT ANTENNA base to the position that includes the operating frequency of your R–T.



NORMAL OPERATION (continued)

3 To set up or establish communications with a distant station.

A Key your R–T transmitter section by pressing the push-to-talk switch on your microphone.



You should hear the R–T blower running.

B Speak into your microphone.

You should hear sidetone in your earphone(s) or loudspeaker.

C Tell the distant station to transmit to you and then release your push-to-talk switch.

The sidetone should stop.

Normally the blower will stop running BUT if the equipment is warm, the blower will continue running.

D Listen to your loudspeaker or earphone(s) for the signal from the distant station

Adjust your VOLUME control for a comfortable listening level

E If you cannot reach the distant station on LOW power, repeat the above procedures with the POWER switch set to HIGH

F After establishing communications you may use SQUELCH operation if desired.

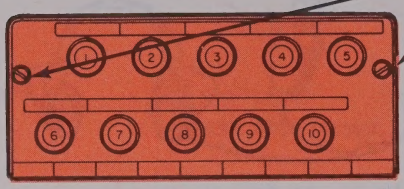
Set the SQUELCH switch to NEW ON or OLD ON as appropriate.

NOTE: Instead of making SQUELCH settings at this time, it is possible to make them during step **2** , R–T turn on. Make sure the distant station and you have your SQUELCH controls in the same position.

INITIAL ADJUSTMENTS AND SETUP

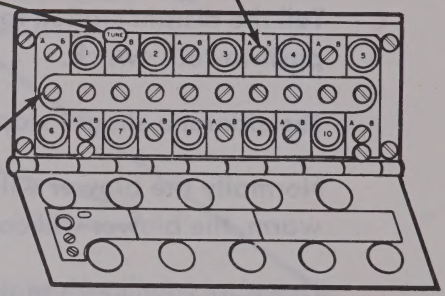
3 Pushbutton operation (RT-246/VRC)

A Loosen captive screws on R-T to drop hinged cover.



B Turn BAND selector to either A (30 MHz-52.95 MHz) or B (53 MHz-75.95 MHz) for each preset channel.

C Push TUNE button while tuning each preset channel.



D Press in the TUNE button and tune preset control of each corresponding channel to the correct frequency as shown on DIAL WINDOW . Release TUNE button to lock in frequency for each preset channel.

E After tuning a preset pushbutton, check accuracy of your R-T.

—Change frequency, either manually or with another pushbutton.

—Press pushbutton of channel you had preset.

—R-T should tune to exact frequency you preset as shown on DIAL WINDOW .

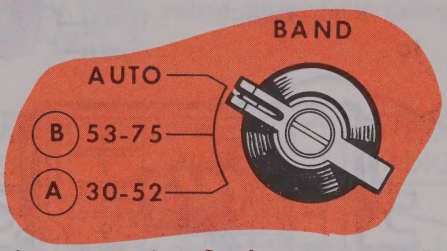
F Tune the other pushbutton as required (step D)

G Check each preset pushbutton setup (repeat step E)

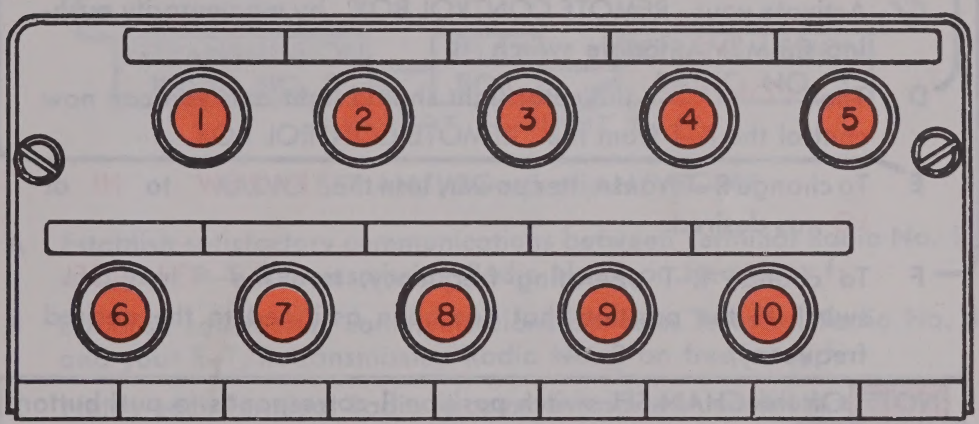
NORMAL OPERATION (continued)

4 PUSHBUTTON OPERATION: (Applies to RT246(*)/VRC only)

A Move BAND switch to AUTO



B Repeat previous steps in **2** for turn on, **BUT** , instead of manually tuning the R–T, press the pushbutton already preset to the desired frequency.



The tuner in the R–T will operate each time you press a pushbutton and automatically tune the receive and transmit circuits in the R–T.

CAUTION

WAIT FOR THE TUNER TO STOP OPERATING BEFORE YOU CONTINUE. THIS TUNER ALSO AUTOMATICALLY TURNS THE DIAL NUMBERS TO THE FREQUENCY OF THE CHANNEL YOU HAVE SELECTED.

C Establish communications with the distant station following the procedures in **3** .

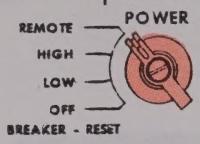
5 TURN OFF PROCEDURE

Turn the POWER switch to OFF . This will turn off the R–T and the dial light will go out.

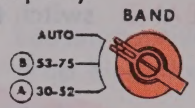
NORMAL OPERATION (continued)

6 REMOTE CONTROL operation with REMOTE CONTROL BOX (C-2742/VRC)

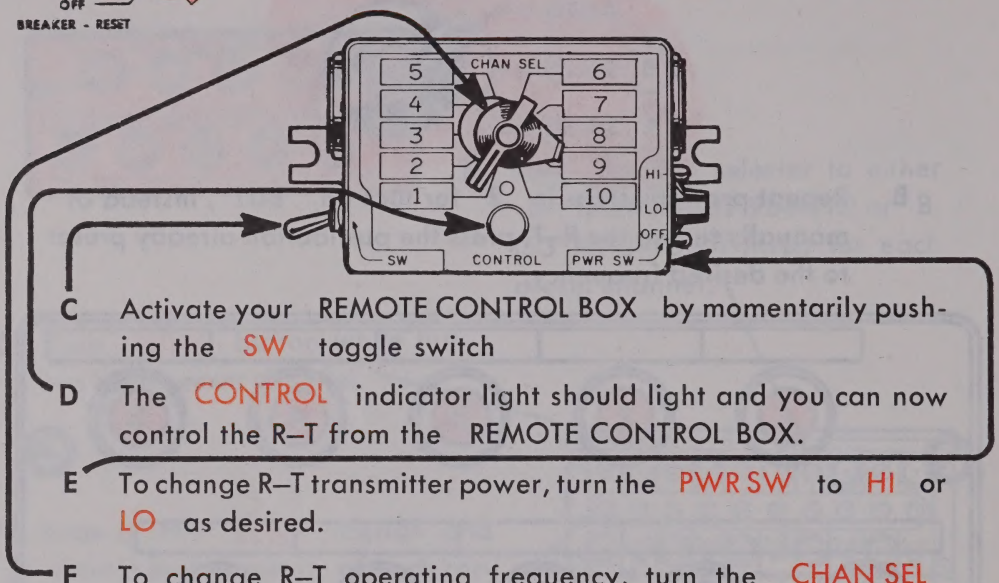
NOTE: This applies only to RT-246(*)/VRC with all preset pushbutton channels operating properly.



A POWER switch to REMOTE



B BAND switch to AUTO



C Activate your REMOTE CONTROL BOX by momentarily pushing the SW toggle switch

D The CONTROL indicator light should light and you can now control the R-T from the REMOTE CONTROL BOX.

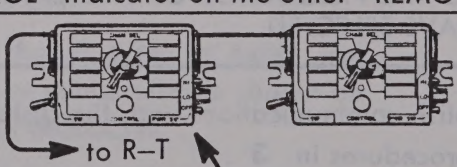
E To change R-T transmitter power, turn the PWR SW to HI or LO as desired.

F To change R-T operating frequency, turn the CHAN SEL switch to the position that has been assigned to the desired frequency.

NOTE: On the CHAN SEL switch position 1 corresponds to pushbutton 1; position 2 to pushbutton 2; position 3 to pushbutton 3; etc.

G To turn off the R-T, turn the PWR SW to OFF. The CONTROL indicator light should go out and the dial lamp on the R-T should go out.

NOTE: In tandem operation of two REMOTE CONTROL BOXES, push the SW toggle switch on the REMOTE CONTROL BOX that should have control of the R-T. Its CONTROL indicator will light up and the CONTROL indicator on the other REMOTE CONTROL BOX will go out.



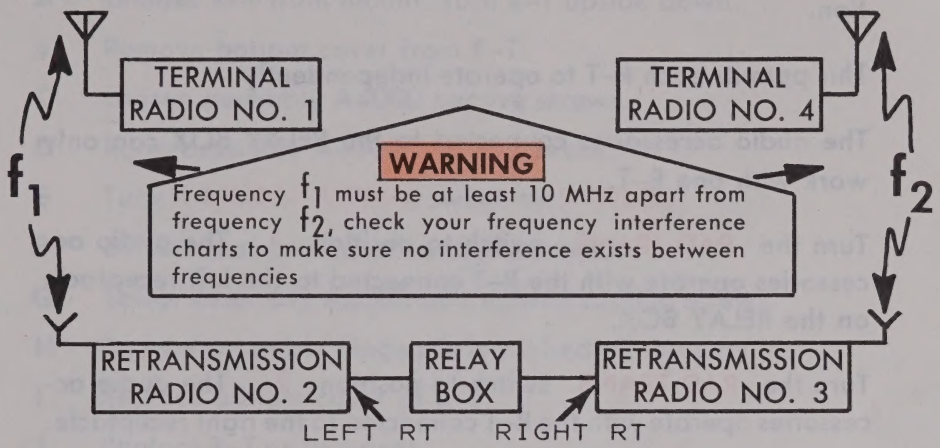
CAUTION: In tandem operation **only** the REMOTE CONTROL BOX connected directly to the R-T can turn the R-T ON and OFF.

H To return control of the R-T from the REMOTE CONTROL BOX, turn the POWER switch from REMOTE to HIGH or LOW.

NORMAL OPERATION (continued)

7 For RELAY or RETRANSMISSION operation.

NOTE: This applies to Radio Sets AN/VRC-45 and AN/VRC-49 which are arranged for radio relay operation using the RADIO RELAY BOX (C-2299/VRC).


TERMINAL RADIO NO. 1
TERMINAL RADIO NO. 4
WARNING
Frequency f_1 must be at least 10 MHz apart from frequency f_2, check your frequency interference charts to make sure no interference exists between frequencies
f_1
f_2
RETRANSMISSION RADIO NO. 2
RELAY BOX
RETRANSMISSION RADIO NO. 3
LEFT RT
RIGHT RT

RADIO SET AN/VRC-45 or AN/VRC-49

A Establish satisfactory communications between Terminal Radio No. 1 and your R-T, Retransmission Radio No. 2 on frequency f_1.

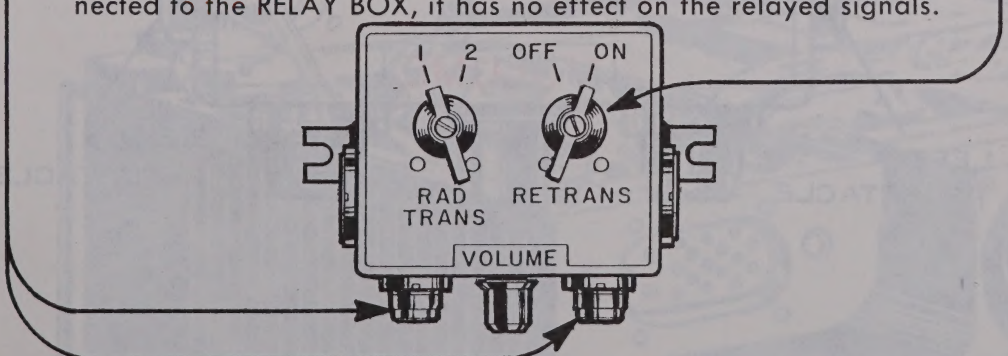
B Establish satisfactory communications between Terminal Radio No. 4. and your R-T, Retransmission Radio No. 3 on frequency f_2.

C Notify each Terminal Radio to communicate with each other.

D Place the RETRANS switch on your RELAY BOX to ON. (This automatically connects the radio relay communications through your equipment).

E The retransmission communications can be monitored by you. Use the audio accessories connected to the front two receptacles on the RELAY BOX.

F Your VOLUME control only works with your audio accessories connected to the RELAY BOX, it has no effect on the relayed signals.



NORMAL OPERATION (continued)

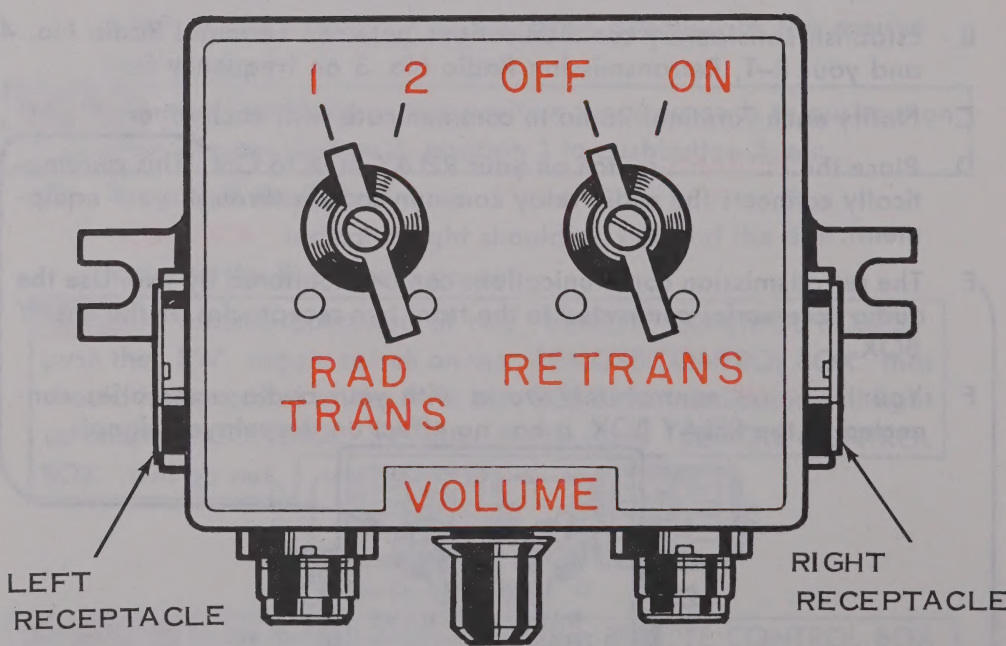
G Turn the RETRANS switch to OFF to stop radio relay operation.

This permits each R–T to operate independently.

The audio accessories connected to the RELAY BOX can only work with one R–T.

Turn the RAD TRANS switch to position 1 . The audio accessories operate with the R–T connected to the left receptacle on the RELAY BOX.

Turn the RAD TRANS switch to position 2 . The audio accessories operate with the R–T connected to the right receptacle.



INITIAL ADJUSTMENTS (continued)

X-Mode Operation

NOTE: Contact organizational maintenance to make adjustments.

A Remove R–T from mount. Turn R–T upside down.

B Remove bottom cover from R–T.

C Loosen assembly A4000 captive screws.

D Raise assembly A4000 and lock brace.

E Turn X-MODE-NORMAL switch to X-MODE.

F Be sure leaf springs are equally curved.

G Lower assembly A4000 and tighten captive screws.

H Be sure assembly hinge pin is pushed all the way in.

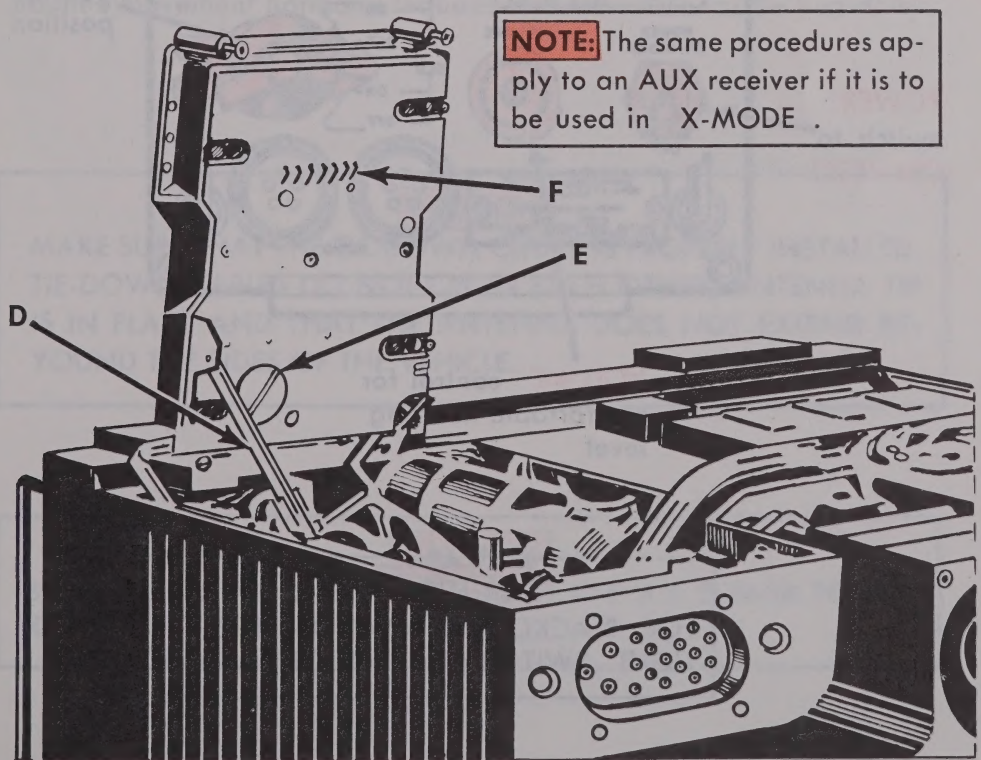
I Replace bottom cover of R–T.

J Replace R–T on to mount

WARNING

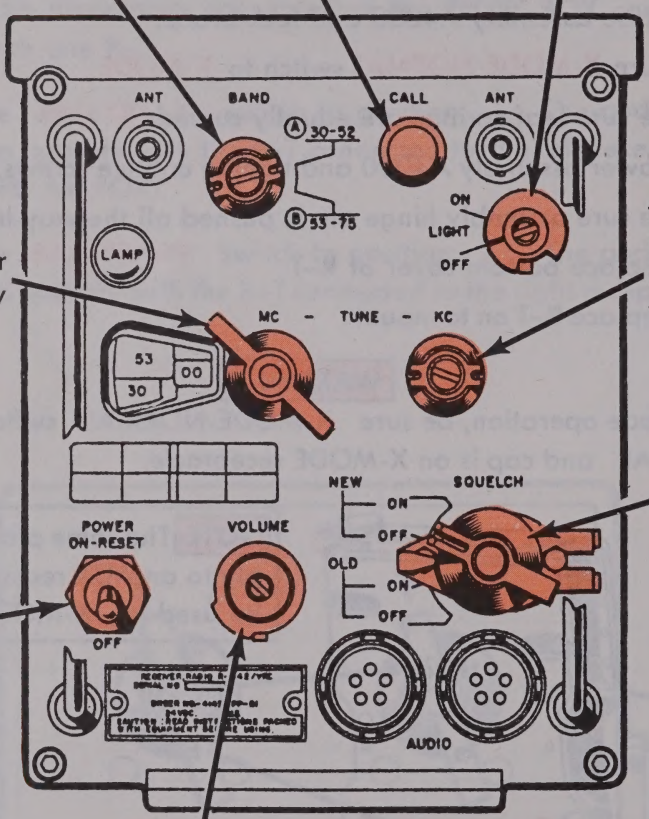
After X-Mode operation, be sure X-MODE-NORMAL switch is returned to NORMAL and cap is on X-MODE receptacle.

NOTE: The same procedures apply to an AUX receiver if it is to be used in X-MODE .



NORMAL OPERATION (continued)

8 AUX RECEIVER OPERATION



BAND switch to A or B

Squelch CALL light (orange)

LIGHT switch to ON for dial illumination and power for CALL indicator lamp

MC control for desired MHz number in dial window

KC control for desired KHz number in dial window

SQUELCH switch to desired position

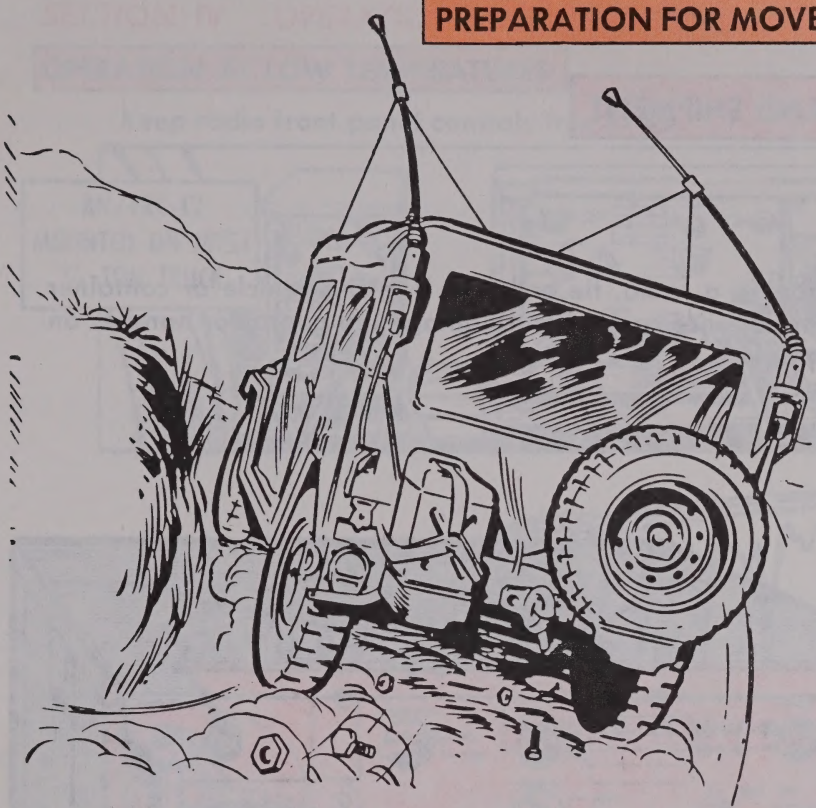
POWER switch to ON-RESET

VOLUME control for comfortable listening level

CAUTION

FOR BLACKOUT OPERATION THE LIGHT SWITCH IS SET TO OFF.

PREPARATION FOR MOVEMENT



Routine movement normally requires that the antennas be tied-down.

CAUTION

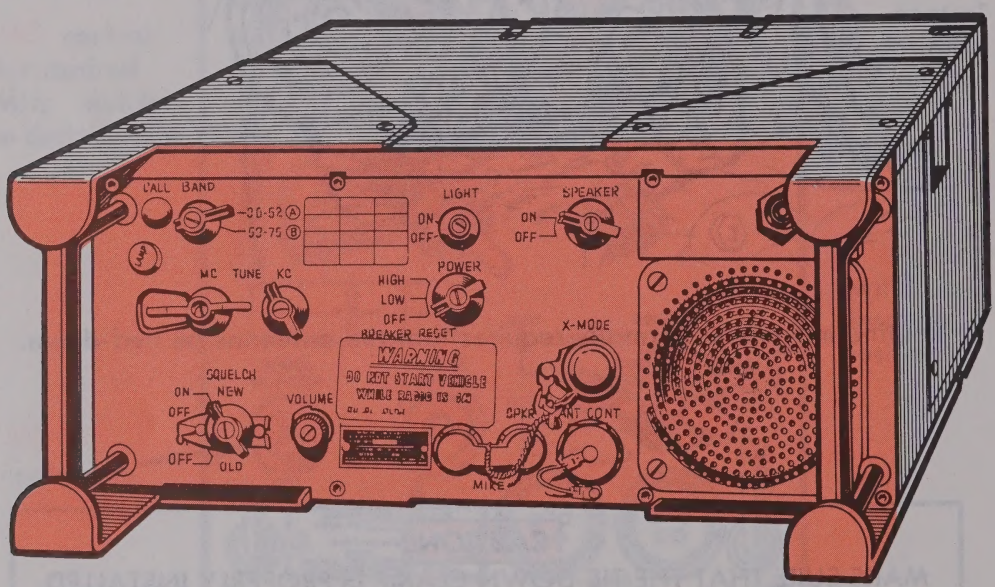
MAKE SURE THAT THE TIE-DOWN CLAMP IS PROPERLY INSTALLED, TIE-DOWN CABLES DO NOT CROSS EACH OTHER, ANTENNA TIP IS IN PLACE AND THAT THE ANTENNA DOES NOT EXTEND BEYOUND THE SIDES OF THE VEHICLE.

CAUTION

BEFORE STARTING THE VEHICLE, SHUT OFF ALL POWER TO THE RADIO.

PACKING AND SHIPMENT

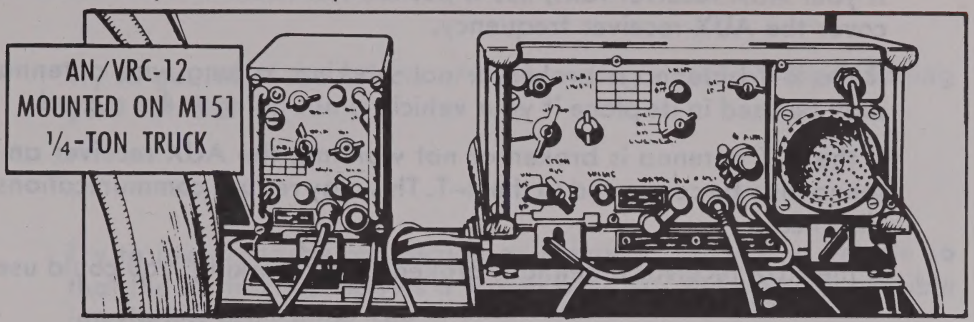
When shipping a radio, tie or brace it in the vehicle or container so it will not bounce around and damage the guards or handles on the front panel.



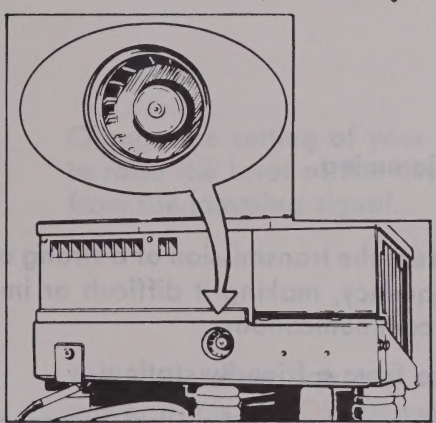
SECTION IV OPERATION UNDER UNUSUAL CONDITIONS

OPERATION AT LOW TEMPERATURES.

Keep radio front panel controls free of **ice.**



Keep **ice** off your antennas.



Make sure the R–T blower port area is free for proper air flow.

Do not bend your cables and cords suddenly.

If possible, keep radio equipment on. If not possible, **warm-up** both the R–T and AUX receivers before operation.

Make sure that the vehicle charging system can maintain a satisfactory **battery charging rate.**

OPERATION IN DESERT AND DUSTY AREAS.

Keep equipment area as **dust free** as possible.

If your radio equipment is constantly exposed to the sun, it should be protected with a heat reflecting paint. Request this service from your supporting maintenance group.

Watch the **water level** in the vehicle battery. Keep it at the proper level.

EMERGENCY PROCEDURES

If your AUX receiver fails, use a pushbutton channel if available to cover the AUX receiver frequency.

If the R–T antenna is broken or not working, a long wire antenna may be used in its place if your vehicle is not going to be moved.

If the R–T antenna is broken or not working, the AUX receiver antenna may be connected to the R–T. This may reduce communications distance.

If the AUX receivar antenna is broken or not working, you could use the R–T antenna if necessary.

NOTE

Tune the R–T antenna to the frequency of the AUX receiver before you switch antennas.

JAMMING

Recognition and identification of jamming.

A common jamming procedure is the transmission of a strong or annoying signal on your frequency, making it difficult or impossible for you to maintain communications.

Sometimes this signal may be from a friendly station.

Unusual noise or interference may be from a local source or your receiver may not be working right.

Check out your receiver.

Disconnect the antenna

Short out your antenna receptacle to the radio chassis.

If the noise or interference continues, you have a bad receiver.

When you know that you are being jammed, tell your superior officer as soon as possible.

ANTIJAMMING PROCEDURES.

Try to get rid of the effects of the jamming signal by repositioning your vehicle.

Try to use a nearby obstruction as a screen. Place your vehicle so that the obstruction acts as a screen between you and the possible interfering transmitter site.

You may get rid of the jamming by pointing your vehicle towards the distant station you are communicating with. Try several vehicle positions.

Change the setting of your VOLUME control. This may enable you to raise the level of the desired signal enough to be distinguished from the jamming signal.

Ask the station you are communicating with to switch to HIGH power if it is on LOW power.

If you cannot maintain communications after trying all possible procedures, get permission to change to another frequency.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

SECTION I.

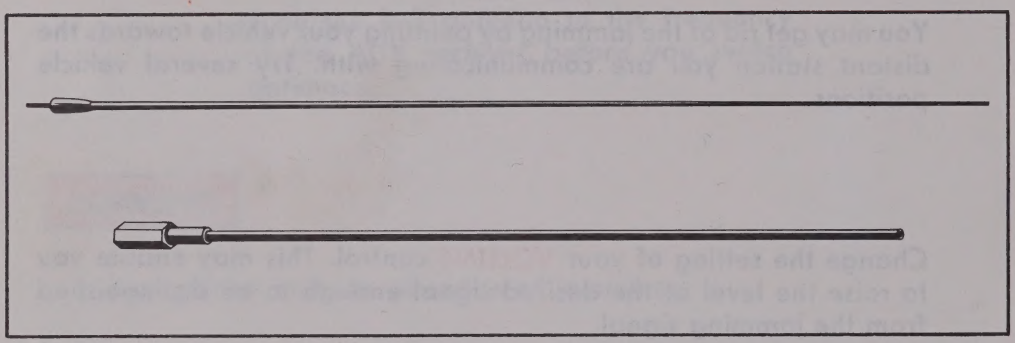
LUBRICATING INSTRUCTIONS

Graphite Grease

Use on all antenna sections

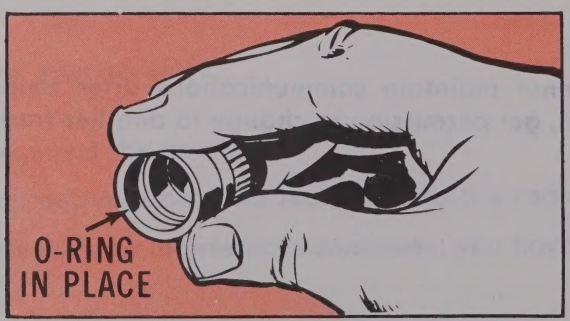
Clean threads before you use grease

Put on male threads only



Silicone grease

Use on O' rings and accessory connectors



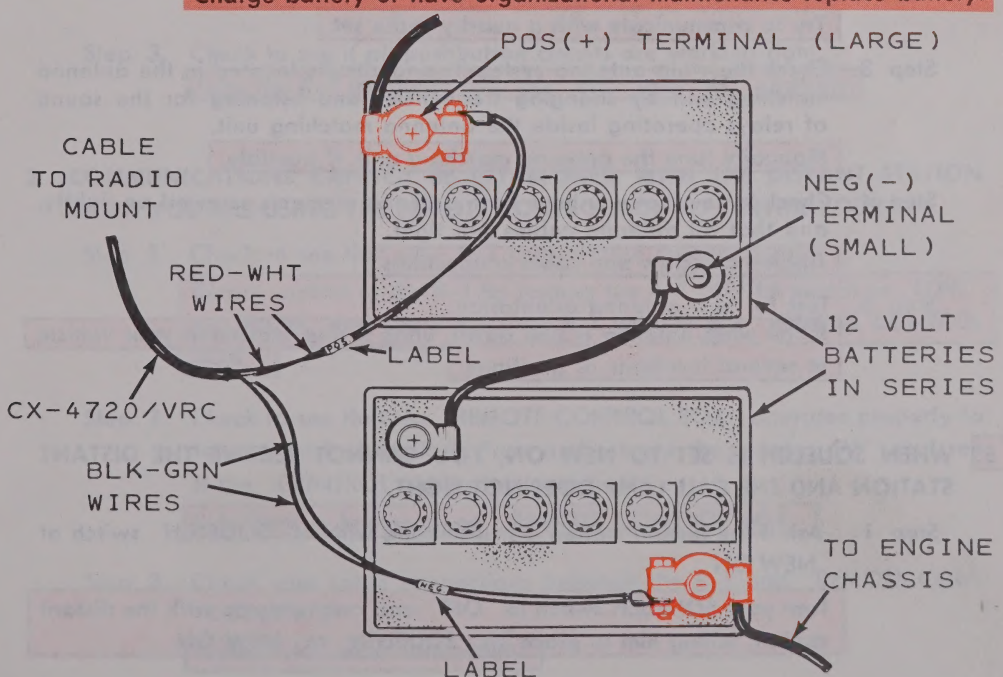
Section II. TROUBLESHOOTING PROCEDURES

The TROUBLESHOOTING table lists the common malfunctions which you may find during the operation or maintenance of the AN/VRC-12 series of radio sets used without an intercom system. You should perform the tests, inspections, and corrective actions in the order listed.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

Table 3-1 TROUBLESHOOTING

MALFUNCTION Test or Inspection	Corrective action.
RECEIVER-TRANSMITTER RT-524(*)/VRC	
1. NO SOUND IS HEARD—MOTOR WILL NOT RUN WHEN YOU PRESS TO TALK, DIAL LAMP WILL NOT LIGHT.	
Step 1. Check to see if circuit breakers have been tripped.	**Turn POWER switch to OFF BREAKER-RESET position then back to LOW or HIGH.**
Step 2. Check to see that power cable is firmly connected to underside of R-T mount.	**Firmly connect power cable to receptacle.**
Step 3. Check to see if R-T is fully connected to power receptacle on mount.	**Push R-T firmly back and tighten mount to R-T clamps.**
Step 4. Check power cable connections to vehicle battery.	**Tighten connections, red-white to positive (+), blue-green to negative (-).**
Step 5. Check for weak or dead vehicle battery.	**Charge battery or have organizational maintenance replace battery.**



TROUBLESHOOTING (continued)

MALFUNCTION
Test or Inspection
Corrective action.

2. R–T BLOWER DOES NOT RUN WHEN YOU PRESS-TO-TALK: RECEIVER SECTION OF R–T IS NORMAL.

Step 1. Check for a defective audio accessory.
Substitute a known good audio accessory.

Step 2. Check for a defective audio accessory receptacle.
Connect a known good audio accessory to a different audio receptacle.

3. R–T BLOWER RUNS WHEN YOU PRESS-TO-TALK BUT YOU CANNOT HEAR SIDETONE: RECEIVER SECTION OF R–T IS NORMAL.
Perform steps 1 and 2 of item 2 above.

4. WHEN YOU PRESS-TO-TALK, YOU HEAR SIDETONE BUT DISTANT STATION REPLY CANNOT BE HEARD.

Step 1. Check to see that the R–T tuning controls are set to the assigned frequency.
Change tuning controls to another frequency then back to the assigned frequency.

Step 2. Check transmitter for normal operation.
Try to communicate with a nearby radio set.

Step 3. Check the whip antenna system tuning circuits located in the antenna matching unit by changing frequencies and listening for the sound of relays operating inside the antenna matching unit.
Manually tune the antenna matching unit, if possible.

Step 4. Check to see that you have both antenna elements screwed on tightly, and that all antenna cables are tight.
Tighten all screw and cable connections.

Step 5. Test for best antenna orientation.
If the whip antenna is tied down, untie it and reposition your vehicle in several locations or positions.

5. WHEN SQUELCH IS SET TO NEW ON, YOU CANNOT RECEIVE THE DISTANT STATION AND THE CALL LAMP DOES NOT LIGHT.

Step 1. Ask if the distant station is transmitting with its SQUELCH switch at NEW ON .

Turn your SQUELCH switch to OFF and communicate with the distant station, telling him to place his SQUELCH to NEW ON .

TROUBLESHOOTING (continued)

MALFUNCTION
Test or Inspection
Corrective action.

Step 2. Ask if the distant station is too far away for his SQUELCH tone to activate your receiver.

Communicate with the distant station with the SQUELCH switch on your R–T set to NEW OFF .

RECEIVER–TRANSMITTER RT–246(*)/VRC

NOTE

ALL OF THE PREVIOUS TROUBLESHOOTING PROCEDURES APPLY TO THE RT–246(*)/VRC ALONG WITH THE FOLLOWING FOR PUSHBUTTON AND REMOTE CONTROL OPERATION.

1. WHEN YOU PRESS A PUSHBUTTON, YOU CANNOT HEAR THE AUTOMATIC TUNER IN THE R–T OPERATE AND THE DIAL NUMBERS DO NOT CHANGE.

Step 1. Check the BAND switch on your R–T.

Turn BAND switch to AUTO position.

Step 2. Check the pushbutton to see if it is working right.

Select another pushbutton and press it.

Step 3. Check to see if all pushbutton circuits are working right.

Tune the R–T manually with the MC and KC controls.

2. COMMUNICATIONS CANNOT BE ESTABLISHED WITH THE DISTANT STATION WHEN YOU ARE USING THE REMOTE CONTROL BOX TO CONTRL YOUR R–T.

Step 1. Check to see that your R–T can operate independently.

Return control to the R–T by turning the R–T POWER switch to LOW or HIGH and check out your R–T without the REMOTE CONTROL BOX .

Step 2. Check to see that the REMOTE CONTROL BOX operates properly to take control of the R–T. Press and release the toggle SW and see if the CONTROL indicator lamp lights.

Substitute a known good REMOTE CONTROL BOX .

Step 3. Check your cable connections between the R–T and REMOTE CONTROL BOX .

Tighten the cable connections.

TROUBLESHOOTING (continued)

MALFUNCTION
Test or Inspection
Corrective action.

RADIO RELAY BOX (C–2742/VRC)

USED IN A RETRANSMISSION OPERATION

1. RETRANSMISSION IS NOT POSSIBLE. NOTE: Radio must be set up for SQUELCH operation.

Step 1. Make a communications check with your left R–T by connecting the audio accessories to its front panel.
Troubleshoot the left R–T if it does not operate independently.

Step 2. Make a communications check with your right R–T by connecting the audio accessories to its front panel.
Troubleshoot the right R–T if it does not operate independently.

Step 3. Check all cable connections.
Tighten cable connections.

RADIO RELAY BOX (C–2742/VRC)

USED AS A CONVENIENT MEANS OF CONNECTING AUDIO ACCESSORIES

1. YOUR R–T CANNOT BE CONTROLLED BY THE AUDIO ACCESSORIES CONNECTED TO THE FRONT PANEL OF THE RADIO RELAY BOX.

Step 1. Check all cable connections
Tighten cable connections.

Step 2. Check your audio accessory by connecting it to the front panel of the R–T. Attempt operation of the R–T from the front panel.
Replace the audio accessory if R–T cannot be operated from front panel.

Step 3. Try to operate the R–T from its front panel with an audio accessory that you know is working.
Troubleshoot the R–T if the known good accessory does not work.

TROUBLESHOOTING (continued)

MALFUNCTION

Test or Inspection

Corrective action.

AUX RECEIVER R–442(*)/VRC

1. NO SOUND IS HEARD, DIAL LAMP DOES NOT LIGHT. ASSOCIATED R–T HAS POWER.

Step 1. Check to see if circuit breaker on AUX receiver has been tripped.
Set AUX receiver POWER switch to ON RESET .

Step 2. Check for a loose power cable connection between R–T and AUX receiver.
Tighten power cable connections.

Step 3. Check to see if AUX receiver is fully plugged into its mount power receptacle.
Push AUX receiver firmly back and tighten mount to AUX receiver clamps.

2. NO SOUND IS HEARD BUT DIAL LIGHT DOES LIGHT.

Step 1. Check for a bad audio accessory.
Substitute a known good audio accessory.

Step 2. Check for a defective audio accessory receptacle.
Connect an accessory that you know is working to the other AUDIO receptacle.

3. RUSHING NOISE IS HEARD BUT SIGNAL OF DISTANT RADIO IS NOT HEARD.

Step 1. Check to see that the AUX receiver tuning controls are accurately tuning the frequency indicated by the dial numbers.
Try to receive a signal from a nearby transmitter operating on a different frequency and then retune the AUX receiver to the assigned frequency.

Step 2. Check AUX receiver antenna cable connections.
Tighten cable connections.

Step 3. Check to see that antenna elements are screwed tightly together and that all antenna elements are tight.
Tighten all cable and screw connections.

Step 4. Check for best antenna orientation.
If AUX receiver whip antenna is tied down, untie it and reposition your vehicle in several locations or positions.

APPENDIX A

REFERENCE

The following is a list of applicable references that are available to the operator of AN/VRC–12 series radios.

DA Pam 310–4	Index of Technical Manuals, Technical Bulletins Supply Manuals (types 7, 8, and 9) Supply Bulletins, and Lubrication Orders.
DA Pam 310–7	Modification Work Orders.
SB 11–131	Vehicular radio sets and authorized installations.
SB 11–586	Blower cover NSN 5820–00–K98–4055 for mounting MT–1029/VRC
SB 11–624	Warning notice for vehicles in which radios are mounted
TB 746–10	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 11–2651	Antenna groups AN/GRA–4 and AN/GRC–12.
TM 11–5820–348–15	Organizational, DS, GS, and depot maintenance manual: Antenna equipment RC–292.
TM 11–5820–401–12	Operator's and Organizational maintenance manual; Radio sets AN/VRC–12 series.
TM 11–5965–262–13	Organizational and DS maintenance manual including repair parts and special tool lists: Headset microphone dynamic H–161/U and H–161A/U.
TM 11–5965–280–15	Operator, organizational DS, GS, and depot maintenance manual including repair parts and special tools list: Headset H–189/GR.
TM 11–5985–262–15	Operator, organizational DS, GS, and depot maintenance manual: including repair parts and special tools lists: AS–1729/VRC.
TM 38–750	The Army Maintenance Management System (TAMMS).
TM 750–244–2	Procedures for destruction of electronics materiel to prevent enemy use (Electronics Command).

APPENDIX B
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B–1. Scope

This appendix lists integral components of and basic issue items for the Radio Sets AN/VRC–12 and AN/VRC–43 through AN/VRC–49 to help you inventory items required for safe and efficient operation.

B–2. General

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item.

These items, when assembled, comprise the Radio Sets AN/VRC–12 and AN/VRC–43 through AN/VRC–49 and must accompany them whenever they are transferred or turned in. The illustration will help you identify these items.

b. Section III. Basic Issue Items. Not applicable.

B–3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) **Figure number.** Indicates the figure number of the illustration on which the item is shown.

(2) **Item number.** The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

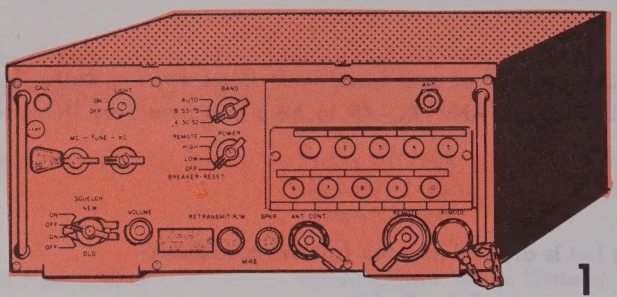
c. Description. Indicates the Federal item name and, if required a minimum description to identify the item. The part number indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Location. If the physical location is necessary to help you inventory each major item, it will be listed in this column.

e. Usable on Code. Not applicable.

f. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

g. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item.



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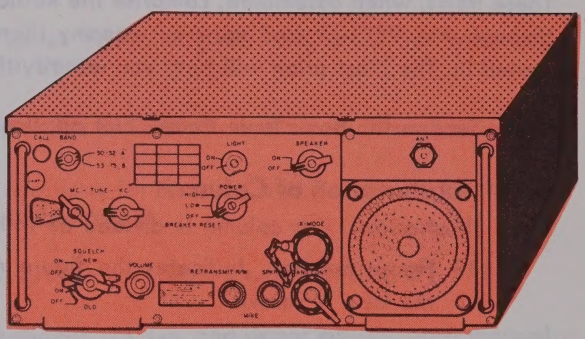

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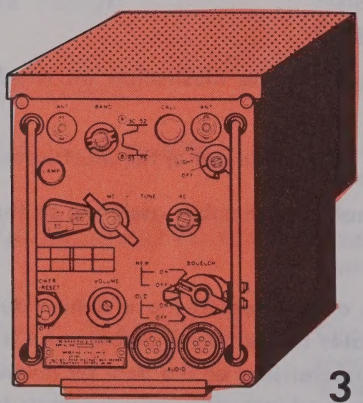

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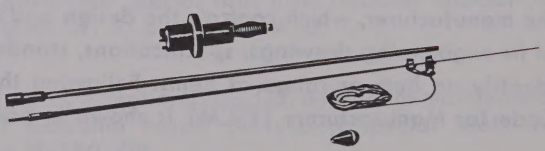

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Figure B-1

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) DESCRIPTION (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			SECTION II						
		5820-00-223-7412	RADIO SET AN/VRC-12						
B-1	1	5820-00-892-0623	RECEIVER-TRANSMITTER, RADIO RT-246/VRC or RT-246A/VRC	(80063)			1		
B-1	3	5820-00-892-0624	RECEIVER-RADIO R-442/VRC or R-442A/VRC	(80063)			1		
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			1		
		5820-00-223-7415	RADIO SET AN/VRC-43						
B-1	1	5820-00-892-0623	RECEIVER-TRANSMITTER, RADIO RT-246/VRC or RT-246A/VRC	(80063)			1		
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			1		
		5820-00-223-7417	RADIO SET AN/VRC-44						
B-1	1	5820-00-892-0623	RECEIVER-TRANSMITTER, RADIO RT-246/VRC or RT-246A/VRC	(80063)			1		
B1	3	5820-00-892-0624	RECEIVER,RADIO R-442/VRC or R-442A/VRC	(80063)			2		
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			1		
		5820-00-223-7418	RADIO SET AN/VRC-45						
B-1	1	5820-00-892-0623	RECEIVER-TRANSMITTER, RADIO RT-246/VRC or RT-246A/VRC	(80063)			2		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) DESCRIPTION (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			2		
		5820-00-223-7433	RADIO SET AN/VRC-46						
B-1	2	5820-00-892-0622	RECEIVER-TRANSMITTER, RADIO RT-524/VRC or RT-524A/VRC	(80063)			1		
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			1		
		5820-00-223-7434	RADIO SET AN/VRC-47						
B-1	2	5820-00-892-0622	RECEIVER-TRANSMITTER, RADIO RT-524/VRC or RT-524A/VRC	(80063)			1		
B-1	3	5820-00-882-0624	RECEIVER, RADIO R-442/VRC or R-442A/VRC	(80063)			1		
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			1		
		5820-00-223-7435	RADIO SET AN/VRC-48						
B-1	2	5820-00-892-0622	RECEIVER-TRANSMITTER, RADIO RT-524/VRC or RT-524A/VRC	(80063)			1		
B-1	3	5820-00-892-0624	RECEIVER, RADIO R-442/VRC or R-442A/VRC	(80063)			2		
B-1	4	5895-00-985-9024	ANTENNA AS-1729/VRC	(80063)			1		
		5820-00-223-7437	RADIO SET AN/VRC-49						
B-1	2	5820-00-892-0622	RECEIVER-TRANSMITTER, RADIO RT-524/VRC or RT-524A/VRC	(80063)			2		
B-1	4	5985-00-985-9024	ANTENNA AS-1729/VRC	(80063)			2		

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. Scope

This appendix lists additional items you are required to have on hand to make the basic radio (appx B) operational.

C-2. General

a. The items listed are part of vehicular installation kits, vehicular or electrical equipment harnesses and/or vehicular accessory kits required to make the basic radio operational in the particular vehicle in which the radio is installed.

b. The installation kits, harnesses and/or accessory kits authorized for all vehicles in which basic radio is installed are listed in SB11-131. The authority for the vehicle installation kit, accessory kit, and/or harness are all authorized under CTA, MTOE, TDA, or JTA. The quantities required are based on the kit, harness, and/or accessory for the particular vehicle in which the basic radio is installed (e.g. M151 truck, M60A1 tank, etc.)

C-3. Explanation of listing.

National stock number and description are provided to help you identify and request the authorized items to make the basic radio operational.

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM	USABLE ON CODE	(3) UNIT OF MEAS	(4) QTY AUTH
	CABLE ASSEMBLY, POWER, ELECTRICAL			
5995-00-889-0900	CX-4720/VRC (1 Ft.)	80058	FT	
5995-00-169-6049	CX-4720/VRC (3 Ft.)	80058	FT	
5995-00-889-0708	CX-4720/VRC (4 Ft.)	80058	FT	
5995-00-823-2828	CX-4720/VRC (5 Ft.)	80058	FT	
5995-00-823-2827	CX-4720/VRC (6 Ft.)	80058	FT	
5995-00-889-1148	CX-4720/VRC (8 Ft.)	80058	FT	
5995-00-823-2726	CX-4720/VRC (10 Ft.)	80058	FT	
5995-00-889-1253	CX-4720/VRC (12 Ft.)	80058	FT	
5995-00-823-2854	CX-4720/VRC (14 Ft.)	80058	FT	
5995-00-985-8395	CX-4720/VRC (16 Ft.)	80058	FT	
5995-00-889-0836	CX-4720/VRC (20 Ft.)	80058	FT	
5995-00-987-1299	CX-4720/VRC (30 Ft.)	80058	FT	
5995-00-985-7877	CX-4721/VRC (2 Ft.)	80058	FT	
5995-00-823-2770	CX-4721/VRC (3 Ft.)	80058	FT	
5995-00-823-8945	CX-4721/VRC (5 Ft.)	80058	FT	
5995-00-823-2769	CX-4721/VRC (6 Ft.)	80058	FT	
5995-00-823-2852	CX-4721/VRC (8 Ft.)	80058	FT	
5995-00-823-2912	CX-4721/VRC (10 Ft.)	80058	FT	
	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL			
5995-00-823-2817	CX-4722/VRC (2 Ft.)	80058	FT	
5995-00-823-2824	CX-4722/VRC (3 Ft.)	80058	FT	
5995-00-823-2820	CX-4722/VRC (7 Ft.)	80058	FT	

5995-00-823-2872	CX-4722/VRC (9 Ft.)	80058	FT	
5995-00-823-2818	CX-4722/VRC (10 Ft.)	80058	FT	
5995-00-823-8030	CX-4722/VRC (11 Ft.)	80058	FT	
5995-00-823-2910	CX-4722/VRC (12 Ft.)	80058	FT	
5995-00-985-7884	CX-4722/VRC (14 Ft.)	80058	FT	
5995-00-985-7618	CX-4722/VRC (15 Ft.)	80058	FT	
5995-00-985-8393	CX-4722/VRC (16 Ft.)	80058	FT	
5995-00-985-8090	CX-4722/VRC (20 Ft.)	80058	FT	
5995-00-985-7880	CX-4722/VRC (30 Ft.)	80058	FT	
5995-00-491-7107	CX-4722A/VRC (4 Ft.)	80058	FT	
5995-00-491-7106	CX-4722A/VRC (5 Ft.)	80058	FT	
5995-00-258-8423	CX-4722A/VRC (6 Ft.)	80058	FT	
5995-00-408-2661	CX-4722A/VRC (8 Ft.)	80058	FT	
5995-00-823-2830	CX-4723/VRC (2 Ft.)	80058	FT	
5995-00-823-2831	CX-4723/VRC (3 Ft.)	80058	FT	
5995-00-823-2832	CX-4723/VRC (4 Ft.)	80058	FT	
5995-00-823-2833	CX-4723/VRC (5 Ft.)	80058	FT	
5995-00-823-2834	CX-4723/VRC (6 Ft.)	80058	FT	
5995-00-823-2835	CX-4723/VRC (8 Ft.)	80058	FT	
5995-00-823-2836	CX-4723/VRC (9 Ft.)	80058	FT	
5995-00-823-2837	CX-4723/VRC (10 Ft.)	80058	FT	
5995-00-823-2838	CX-4723/VRC (12 Ft.)	80058	FT	
5995-00-823-2839	CX-4723/VRC (13 Ft.)	80058	FT	
5995-00-823-2840	CX-4723/VRC (14 Ft.)	80058	FT	
5995-00-823-2841	CX-4723/VRC (15 Ft.)	80058	FT	
5995-00-823-2842	CX-4723/VRC (16 Ft.)	80058	FT	
5995-00-823-2843	CX-4723/VRC (18 Ft.)	80058	FT	
5995-00-889-0757	CX-4723/VRC (20 Ft.)	80058	FT	
5995-00-823-2787	CX-7055/VRC (1.5 Ft.)	80058	FT	
5995-00-889-0888	CX-7055/VRC (3 Ft.)	80058	FT	
5995-00-823-2867	CX-7055/VRC (4 Ft.)	80058	FT	
5995-00-889-1022	CX-7055/VRC (5 Ft.)	80058	FT	
5995-00-823-2916	CX-7055/VRC (6 Ft.)	80058	FT	
5995-00-823-2868	CX-7056/VRC (1 Ft.)	80058	FT	

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM	USABLE ON CODE	(3) UNIT OF MEAS	(4) QTY AUTH
	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL			
5995-00-823-2788	CX-7056/VRC (2 Ft.)	80058	FT	
5995-00-823-2789	CX-7057/VRC (2 Ft.)	80058	FT	
5995-00-889-1149	CX-7057/VRC (3 Ft.)	80058	FT	
5995-00-933-4601	CX-7057/VRC (5 Ft.)	80058	FT	
5995-00-823-2869	CX-7058/VRC (2 Ft.)	80058	FT	
5995-00-823-2796	CX.7058/VRC (3 Ft.)	80058	FT	
5995-00-889-0389	CX-7058/VRC (4 Ft.)	80058	FT	
5995-00-889-0828	CX-7058/VRC (7 Ft.)	80058	FT	
5995-00-823-2915	CX-7058/VRC (9 Ft.)	80058	FT	
5995-00-823-2865	CX-7059/VRC (5 Ft.)	80058	FT	
5995-00-261-9873	CX-7059/VRC (6 Ft.)	80058	FT	
5995-00-985-8072	CX-7059/VRC (7 Ft.)	80058	FT	
5995-00-823-2751	CX-7059/VRC (8 Ft.)	80058	FT	
5995-00-889-0703	CX-7059/VRC (9 Ft.)	80058	FT	
5995-00-823-2752	CX-7059/VRC (10 Ft.)	80058	FT	
5995-00-823-2753	CX-7059/VRC (11 Ft.)	80058	FT	
5995-00-889-0596	CX-7059/VRC (12 Ft.)	80058	FT	
5995-00-889-0941	CX-7059/VRC (13 Ft.)	80058	FT	
5995-00-935-0270	CX-7059/VRC (14 Ft.)	80058	FT	
5995-00-889-0616	CX-7059/VRC (15 Ft.)	80058	FT	
5995-00-889-0766	CX-7059/VRC (17 Ft.)	80058	FT	
5995-00-261-9875	CX-7059/VRC (18 Ft.)	80058	FT	

5995-00-985-8321	CX-7060/VRC (2 Ft.)	80058	FT	
5995-00-926-0769	CX-7060/VRC (3 Ft.)	80058	FT	
5995-00-926-0770	CX-7060/VRC (4 Ft.)	80058	FT	
5995-00-823-2782	CX-7060/VRC (5 Ft.)	80058	FT	
5995-00-985-8385	CX-7060/VRC (6 Ft.)	80058	FT	
5995-00-823-2784	CX-7060/VRC (7 Ft.)	80058	FT	
5995-00-985-8351	CX-7060/VRC (9 Ft.)	80058	FT	
5995-00-258-8407	CX-7060/VRC (10 Ft.)	80058	FT	
5995-00-926-0778	CX-7060/VRC (14 Ft.)	80058	FT	
5995-00-823-2802	CX-7328/VRC (2 Ft.)	80058	FT	
5995-00-823-2803	CX-7328/VRC (3 Ft.)	80058	FT	
5995-00-823-2797	CX-7555/VRC (4 Ft.)	80058	FT	
5995-00-823-2799	CX-7555/VRC (6 Ft.)	80058	FT	
5995-00-823-2870	CX-7621/VRC (4 Ft.)	80058	FT	
5995-00-987-1331	CX-7621/VRC (6 Ft.)	80058	FT	
5995-00-926-0834	CX-7867/VRC (6 Ft.)	80058	FT	
5995-00-889-1130	CX-7867/VRC (10 Ft.)	80058	FT	
5995-00-889-0784	CX-7867/VRC (12 Ft.)	80058	FT	
5995-00-935-0383	CX-7867/VRC (13 Ft.)	80058	FT	

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM	USABLE ON CODE	(3) UNIT OF MEAS	(4) QTY AUTH
		ADAPTER		
5935-00-149-3534	UG-273/U	80058	EA	
5935-00-666-1649	UG-306B/U	80058	EA	
		ANTENNA, ELEMENTS		
5985-00-199-8831	MS-116A	80063	EA	
5985-00-115-7149	MS-117A	80063	EA	
5985-00-238-7474	MS-118A	80063	EA	
		CONTROL, FREQUENCY SELECTOR		
5820-00-892-3343	C-2742/VRC	80063	EA	
		CONTROL, RADIO SET		
5820-00-892-3340	C-2299/VRC	80058	EA	
		HANDSET		
5965-00-069-8886	H-189/GR	80058	EA	
5965-00-043-3463	H-250/U	81134	EA	
		HEADSET		
5965-00-892-1010	H-140/U	80058	EA	
5965-00-043-3460	H-251/U	81134	EA	

			HEADSET-MICROPHONE		
5965-00-179-3789	H-161/U		80058	EA	
			LOUDSPEAKER		
5965-00-876-2375	LS-454/U		80058	EA	
			MAST BASE		
5985-00-221-5544	AB-15/GR		80058	EA	
5820-00-474-6163	AB-558/GR		80058	EA	
			MICROPHONE		
5965-00-179-7762	M-80/U		81349	EA	
			MOUNTING		
5820-00-893-1323	MT-1029/VRC		80063	EA	
5820-00-893-1324	MT-1898/VRC		80063	EA	
			CABLE ASSEMBLY, RADIO FREQUENCY		
5995-00-823-2986	CG-1773A/U, B/U	(3 Ft.)	88058	FT	
5995-00-889-1037	CG-1773A/U	(4 Ft.)	88058	FT	
5995-00-823-2990	CG-1773A/U	(8 Ft.)	88058	FT	
5995-00-985-8394	CG-1773A/U	(16 Ft.)	88058	FT	
5995-00-823-2987	CG-1773B/U	(4 Ft.)	88058	FT	
5995-00-823-2988	CG-1773B/U	(5 Ft.)	88058	FT	
5995-00-823-2989	CG-1773B/U	(6 Ft.)	88058	FT	
5995-00-823-2991	CG-1773B/U	(7 Ft.)	88058	FT	
5995-00-823-3074	CG-1773B/U	(9 Ft.)	88058	FT	
5995-00-823-3073	CG-1773B/U	(10 Ft.)	88058	FT	
5995-00-823-2992	CG-1773B/U	(12 Ft.)	88058	FT	
5995-00-926-8310	CG-1773B/U	(13 Ft.)	88058	FT	
5995-00-985-7551	CG-1773B/U	(15 Ft.)	88058	FT	

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the Radio Sets AN/VRC-12 and AN/VRC-43 through AN/VRC-49. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. Explanation of Columns

a. **Column 1—Item Number.** No number appears in this column if the expendable item is referenced in the narrative instructions by military specification on other terms. If the item is identified in the narrative insructions by an item number, this number should appear in this column.

b. **Column 2—Level.** This column identifies the lowest level of maintenance that requires the listed item.

C—Operator/Crew
O—Organizational Maintenance
F—Direct Support Maintenance
H—General Support Maintenance

c. **Column 3—National Stock Number.** This is the National stock number assigned to the item; use it to request or requisition the item.

d. **Column 4—Description.** Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. **Column 5—Unit of Measure (U/M).** Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS
	C	5970-00-816-6056	LOW TEMPERATURE TAPE 88 (3/4") 20999	FT.
	C	6850-00-880-7616	SILICONE COMPOUND MIL-S-8660 81349	OZ.
	C	9150-00-190-0918	GRAPHITE GREASE, Non Seizing Compound VVG-671 81348	LB.

APPENDIX E

DETAILED TECHNICAL CHARACTERISTICS

Type of modulation	Frequency modulation (fm).
Frequency range	From 30.00 to 75.95 MHz at 0.05MHz intervals.
Frequency stability	±3 kHz of selected frequency.
Number of frequency settings	920 settings.
Tuning facility	Manual tuning. And in RT–246(*)/VRC, 10 frequencies can be set up for automatic pushbutton tuning which can also be selected automatically by C–2742/VRC connected to RT–246(*)/VRC.
Antenna receptacle impedance	50 ohms; BNC receptacle.
Control of matching networks in antenna	Tuning receiver-transmitter also automatically selects proper matching networks in antenna.
Operating conditions	Push-to-talk and release-to-receive.
Modes of operation	Voice (radiotelephone), retransmission (radio relay), and X-mode.
X-mode operation	Provides facility for digital data and secure voice communication.
Audio response capability:	
Narrow band (usual mode of operation)	500 to 3,000 Hz.
Wide band	500 to 20,000Hz. Provided for R–442(*)/VRC used in Radio Terminal Set AN/GRC-163 (TM 11-5820-713-15).
Audio input and output control facilities	Five-pin panel receptacles; rear-mounted receptacle for remote control by radio-intercom system and C–2299/VRC; X-mode operation facility.
Operating power	22 to 30 volts dc.
Used in	Vehicles provided with 24-volt battery system.

TRANSMITTING FEATURES FOR R-T

Output RF power (into ideal 50-ohm antenna):	
Low power	0.5 to 8 watts with 25 volts dc operating power; 0.5 to 10 watts with 30 volts dc operating power.
High Power	35 watts minimum with 25 volts dc operating power.
Transmission distance (using whip antenna)	Approximately 5 miles (8 kilometers (km) on low power; approximately 25 miles (41 km) to high power.
Carrier deviation	Audio input of 2.8 millivolts produces RF carrier deviation of 8 $\pm$2 kHz.
Squelch tone signal	150 Hz $\pm$3; transmitted on all settings of SQUELCH switch except OLD ON position.
Audio input impedance	150-ohm microphone; 600 ohms for X-mode operation (at X-MODE receptacle).
Duty cycle	Capable of operating continuously in high power in 120-degree ambient temperature with input power of 22 volts dc; and for one hour with input power of 30 volts dc.
Power drain:	
Using low power	3 amperes at 25 volts dc.
Using high power	10 amperes at 25 volts dc.

RECEIVING FEATURES FOR R-T

RF signal sensitivity	0.1 microvolt, minimum.
Audio output impedances (nominal):	
External loudspeaker	160 ohms.
Headphone	150 ohms.
To radio-intercom system	1,800 ohms.
X-mode	600 ohms.
Squelch types:	
Carrier (operative in OLD SQUELCH)	Responsive to carrier noise (approximately 7,300 Hz).
Tone (operative in NEW SQUELCH)	Responsive to 150-Hz squelch tone signal.
Power drain	0.75 ampere at 25 volts dc.

NOTE: Technical characteristics for AUX receiver are identical to RECEIVING FEATURES FOR R-T.

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Chief of Staff

Official:

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